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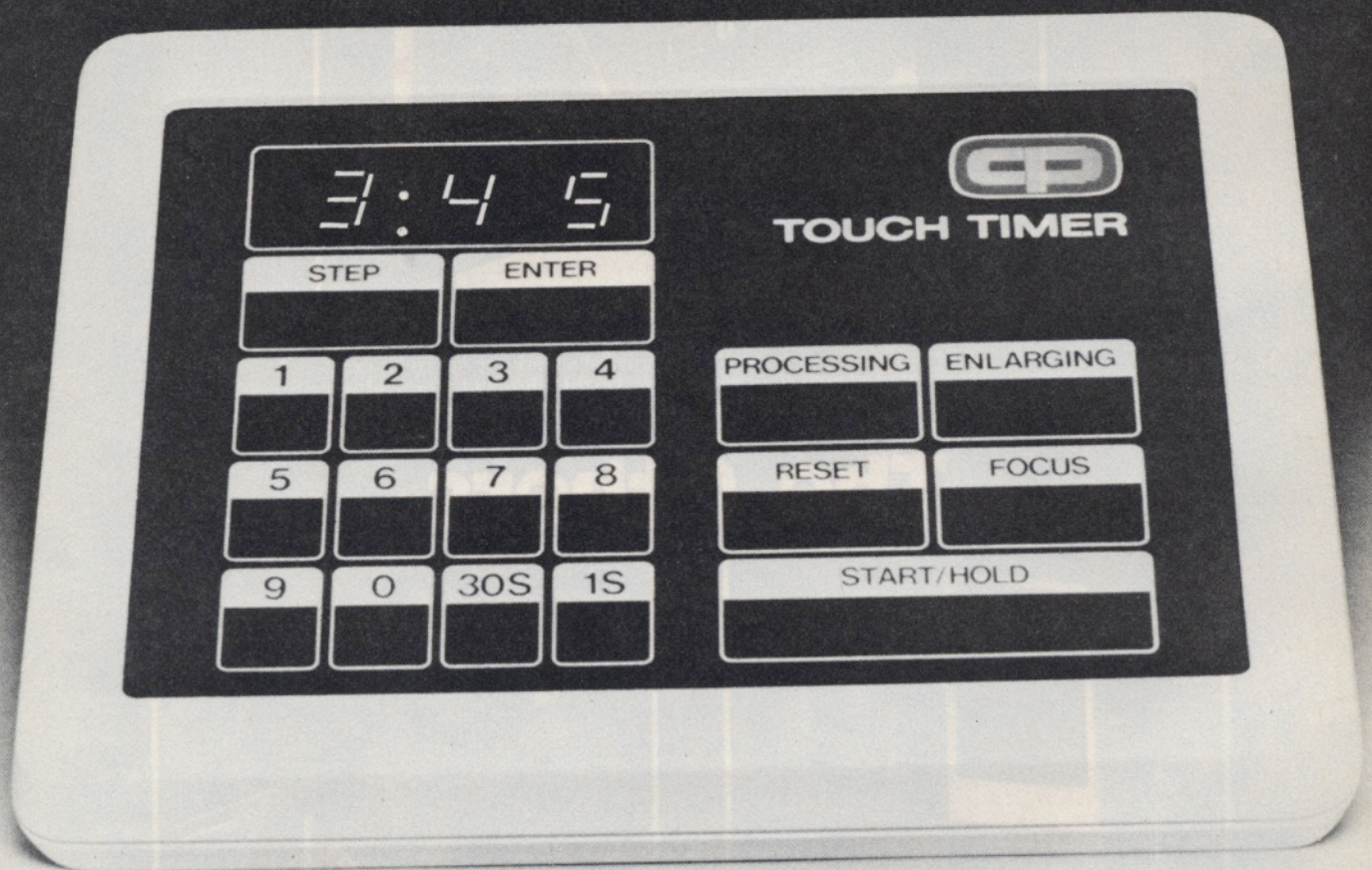
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Alan Newman



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Rudy Bender

Summer is upon us, bringing much that's new from DARKROOM PHOTOGRAPHY. We've got an enticing lineup of features and columns, all designed to capture your attention, transform your photographic vision, and tempt you back into the cool climate of your darkroom. Heading the list is an exciting investigation of the most luxurious and exquisite of photographic processes: platinum printing. Written by teacher, photographer, and renowned platinum printing expert Alan Newman, it's got all you'll need to make platinum prints that rival the masters. Included is a mini-portfolio of Alan's work that's proof of "the pleasures of platinum."

If you're looking to make colors more dazzling than summer itself, we've got an article that's sure to shed light on those mysterious and colorful Sobottier effects. Penned and proven by Jerry Burchfield, it's got his painstaking experiments to back it up, and his boldly surreal Sobottier photographs to knock you out!

Looking for ways to increase your darkroom efficiency these summer months? We have a couple of specials designed to suit you. Our comprehensive print washer analysis reveals that there's more to washing than you might have thought . . . and less. And Rudy Bender has come up with some stabilizer magic that gives you finished RC (resin-coated) prints almost as fast as you can pull the paper out of the box. Perfectionist Bender wasn't satisfied with simply testing those new developer-emulsion RC papers, he found a way to run them through an ultra-fast stabilization processor, too!

And what better time than summer to announce our first annual photo greeting card contest, with the winners to be published in our December '79 issue? Read the details in *Grab Shots*.

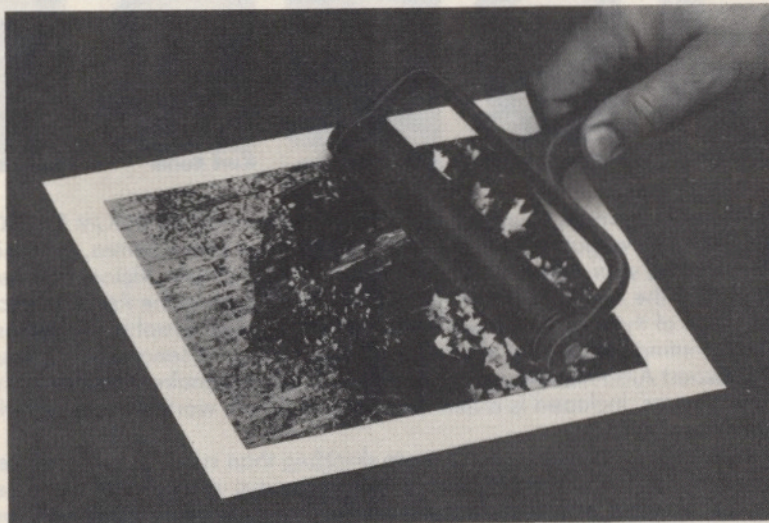
That's not all there is to summer at DARKROOM PHOTOGRAPHY. We've got portfolios and interviews, *Darkroom Discoveries* and *Basics*, product tips, color hints, secrets from the custom lab and more; so turn the page!

Susan R. Keller

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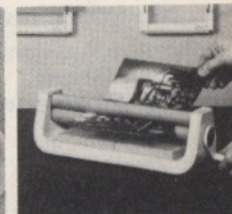
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GRAB SHOTS

Nikons vs. Cannons

Pacifists, take note! U.S. soldiers at Fort Knox, Kentucky, are **shooting pictures** instead of shooting bullets. The U.S. Army Engineer Board is using motor-driven Nikon F2AS cameras equipped with bulk film pocks, 600mm f/5.6 Nikkor telephoto lenses, and Dotocorders for "hit avoidance exercises."

This means, that instead of firing a cannon, the camera's shutter is released, recording the position, time, and other data about when the target would have been hit.

We can't say for sure what kind of pictures the Army is getting, but the click of the shutter sounds better than the boom of a cannon.

Maybe future bottles could be done with cameras. Generals might meet after a set period of time, analyze the photos, and decide who won!

Kodak's Leader Shrinks

Unless you have a very old camera, you've probably suspected for a while that **Kodak's 35mm film leaders** were way too long. The long thin tongues wasted film; more importantly, they wasted time and patience, since hooking the film onto the top and bottom sprockets of a modern 35mm camera when loading could be a tricky procedure.

Well, Kodak has finally seen the light: starting with Ektachrome 200, they'll be putting shorter leaders on all their films in the near future. Better late than never!

Photographers of the Year

Three grand prize winners were recently chosen from among a record-breaking 913 photographers who submitted over 8,500 entries to the 36th annual **"Pictures of the Year" Competition**, the oldest and largest photo contest in the world.

George Wedding of the *Palm Beach Post* won both the Nikon World Understanding Award and the Feature Picture Story category as well, for a photo essay portraying the bottles of Marguerita, a little girl with a terminal brain tumor, and the effect on her family. The



essay culminates in the photograph shown above; moments after her death, Marguerita's father covers the body while a minister struggles to comfort mother and sister.

Chris Johns of the *Topeka Capital Journal* was named Newspaper Photographer of the Year, while James Sugar of *National Geographic Magozine* received the award for Magazine Photographer of the Year.

In case you thought it was

just fame these winners got, prepare yourselves: One thousand dollars and a Nikon F2A went to each grand prize winner! On top of that, the winning pictures will be included in the fourth annual edition of *The Best of Photojournalism* (Newsweek Books), displayed at the Nikon House in New York City July 10-28, and then sent out to tour the country in 1979-80.

Congratulations to the winners!



A Freebie T-Shirt . . . With A Catch

If you're a member of the **Paterson Darkroom Club**, they've got a gift for you—if you sign up another member. Broun North America, sponsor of the Club, will send you a free T-shirt that declares: "Let's See What Develops!"

As its 5,000 members already know, the Paterson Darkroom Club offers a kit full of goodies: A "how-to" darkroom book, a sample darkroom layout, identification labels for trays and chemistry bottles, a card entitling members to a 10 percent rebate on darkroom merchandise, and more. Membership costs \$5 for one year, \$8.50 for two. For information write Paterson Darkroom Club, Dept. D, 55 Cambridge Parkway, Cambridge, MA 02142.

Darkroom Photography's First Annual Photo Greeting Card Contest

Entry Rules:

1. All entries must be received at DARKROOM PHOTOGRAPHY by October 1, 1979, accompanied by an SASE.
2. Enter any or all of the following three categories: 1. best card overall, 2. best in black-and-white, 3. best in color.
3. Cards must not be any larger than 8x10 inches, with name and address on the reverse side of each.
4. Contestants may enter a maximum of five cards total.
5. A 25-word description of how the photo-card was created must accompany each entry. (See *Darkroom Discoveries* for example).
6. All of the winning cards will become the property of DARKROOM PHOTOGRAPHY.
7. Darkroom accessories will be awarded to 1st, 2nd, and 3rd place winners in each category. The grand prize is a brand new enlarger. Further details regarding prizes will follow in the next issue of DARKROOM PHOTOGRAPHY.
8. Winners will be notified in November 1979.
9. Send entries to DARKROOM PHOTOGRAPHY, **Greeting Cards**, 609 Mission St., San Francisco, CA 94105.

Sad News From East Street

Since its birth 11 years ago, **East Street Gallery** of Grinnell, Iowa has been a dedicated source of information and equipment for the quality-conscious darkroom photographer. Now East Street is no more, felled by the considerable costs of its own uncompromising quest for excellence.

Serious photographers will mourn the loss of this fine company.

Somewhere, somehow, some people forgot about the corners of enlargements. They're supposed to be as sharp as the center and receive very nearly equal illumination.

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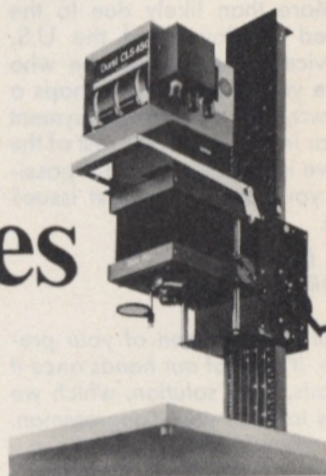
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More Ads!

In reading your first issue, I was delighted to see the Agfa-Gevaert ad on page 22. This ad included "how to process" information. I would like to see more such ads showing "how to" information and perhaps some technical information too. Thank you.

Samuel J. Salzman
Los Angeles, CA

A Tattered Premiere

Just finished reading the premiere issue, found it informative and enjoyed it very much, aside from one thing. It arrived in tatters. In other words it was a mess. More than likely due to the sure-handed employees of the U.S. Postal Service or else some one who doesn't like your magazine, perhaps a rival. Anyway I'm enclosing payment for one year in hopes that the rest of the issues arrive in one piece, and if possible could you replace the first issue? Thank you.

Michael J. Benson
Eugene, OR

Sorry about the condition of your premiere issue. It's out of our hands once it hits the mails. One solution, which we promote, is to write your congressman. Ed.

G. Paul Bishop Without Acetone?

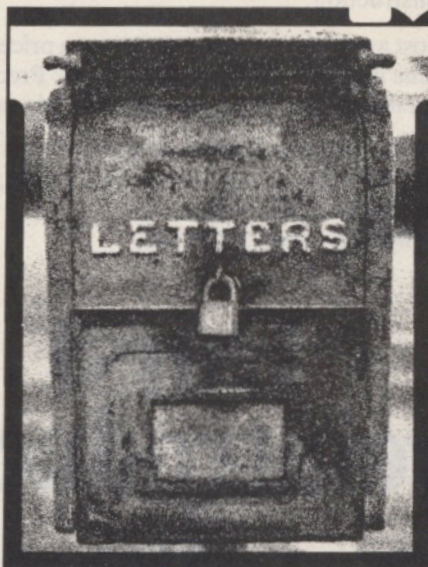
The first issue of your magazine is an impressive start. As a chemist, I have to express a word of caution to your readers on one point in the article about G. Paul Bishop and his interesting techniques.

Acetone, which Mr. Bishop uses as an additive in his film developer, is an extremely volatile and flammable solvent. (Contrary to the impression of many lay people, by the way, the words volatile and flammable are not synonymous. Carbon tetrachloride, for example, is extremely volatile, but non-flammable.) Inhalation of acetone vapor may also produce bronchial irritation.

With the use of a magnifier, I was able to determine that Mr. Bishop's kitchen/darkroom is equipped with a gas range. If the range has the usual gas pilot light, and Mr. Bishop is ever unfortunate enough to drop a bottle of acetone, we may be reading a sad and premature obituary notice in DARKROOM PHOTOGRAPHY.

My advice to the average photographer who is not trained to handle very volatile and flammable solvents safely

MAIL BOX



is to forget about acetone. There are numerous possible variations of Mr. Bishop's dilute metol-sulfite formula that work beautifully, without acetone.

Sid Lauren
Coatings Research Group
Cleveland, OH

Marketing Works

I enjoyed H.T. Kellner's "Making Money" column. I had never previously considered submitting any of my work for publication before this article attracted my attention. Kellner gives helpful hints on finding the right market for the kind of photography you are interested in. I am glad to see his column will be a regular feature of DARKROOM PHOTOGRAPHY.

Dan Hurley
Valdosta, GA

Content With Content

My longtime objection to photo magazines in general has been their paucity of editorial content; they seem to have many ads and very little actual writing. I am writing this letter just to let you know

I saw your magazine and I was impressed with the amount of real content. I hope this isn't just a premiere issue phenomenon, and that you continue putting as many articles in, and perhaps even a few more photographs.

Jon Greenberg
Palo Alto, CA

Ole Bea Nettles Me

RE: Kwik-Print, Volume 1, Number 1. Even though I work with negative sizes through 8x10, I can't understand how Bea Nettles made that "original" 20x26 using contact negatives.

Surely there must be a simple answer. We folk here on the levee have problems of understanding at times.

Rated first issue excellent.

Gary Hobson Dobbs, Jr.
Birmingham, AL

Bea uses Kodak High Speed Duplicating Film. She buys it on a roll 20 inches wide. The roll costs about \$100, and usually must be special-ordered. Ed.

Cat Specialist

I wanted to tell you about Irving, our cat, quite the darkroom specialist. Before I banished him from the area, he loved to push open the darkroom door to see what I was doing. He produced some of the most outrageous solarized prints!

Aurora Monteflore
Oolitic, IN

A Bit Late

The first issue of DARKROOM PHOTOGRAPHY arrived in the mail yesterday, a little late, but I can already see that your magazine is going to be my regular darkroom companion. I have so much to read I don't know where to start. As a matter of fact, I'm going to keep this letter short so I can get back to reading.

Melvin Kault
West Palm Beach, FL

Inky Fingers

I have just finished reading the premiere issue of DARKROOM PHOTOGRAPHY. It's great! Just what we've needed!

However, by the time I had finished reading the first two dozen pages all four fingertips of my right hand were jet black. Also, there were about twenty

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"white" fingerprints on the Pentax ad on the back cover.

This is aggravating; there really is no need for it.

Since you are a new publication, why don't you start off by doing all of your readers a favor—ask the advertisers using your back covers to consider only white or light space along the outer edge. I honestly believe more of us would be inclined to buy their merchandise if they did.

Al Jackson
Westminster, CA

The Tops

Overwhelmed! Gleaned more useful darkroom information from your one premiere issue than from five years of other photo magazines.

Thank you!

Rae Smith
Belhaven, NC

New Ideas

I have just taken the plunge from amateur to professional photography. I operate a custom photographic art service in which I do all of my own darkroom work along with mounting, framing, and hanging. Since I am always looking for new ideas, I was overjoyed at seeing your new magazine. I loved the premiere issue and am now a subscriber. I want to wish you success.

David Hawkins
Fort Meyers, FL

Yeah!

DARKROOM PHOTOGRAPHY has a fine idea in adding a centerfold section to its unusual set of articles. Joe Homsy's hand-coloring and lighting techniques turn the picture into a work of art.

Jeff Lydon
Toronto, Ontario

Pin-up

My congratulations to you on your first issue, which looks like a winner. I have the centerfold pinned up on my wall.

Walter Roberts
Grosse Point, MI

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I often need to shoot about half a dozen exposures and then process the film for rush prints. Why don't they make six-exposure rolls for people like me? Seriously, is there a handy way to avoid waste in this case?

Andy Eskine, Austin, TX

You can bulk load your own film cassettes with as few frames as you like, but you have to provide about 6 inches of film in order to load it into the camera. This means a waste of five or six frames just to shoot your six pictures. Just as easy is this: take your camera into the darkroom, open it after advancing the last exposure, and cut the film just behind the lens. Be careful with your scissors; you don't want to perform a "shutterectomy." Remove the film from the take-up drum in the camera and load it into your tank for processing. Cut a new short leader notch on the remaining film so you can reload it. If you load your camera in the dark, you will lose only about two frames. And if that's too much work, both Kodak and Fuji are introducing 12-exposure rolls!

I'm enclosing some 120 negatives that show a problem I just can't understand: The top and bottom of the picture area are so much darker than the center! My friend says I unloaded the camera in bright light, and the edges are fogged. Is he correct?

Sue Ellenberg, Ann Arbor, MI

Your friend is right to be concerned about unloading film in direct sunlight, but he is wrong in assuming your film is fogged. If it were, the edges of the film wouldn't be perfectly clear, as they are on your samples.

More likely, you need to examine your film agitation method. Too little agitation seems to cause underdevelopment in the center of the film, especially in wider films such as 120.

Most tank manufacturers recommend a complete inversion of the tank once or twice (gently) each 30 seconds. If you are already doing this, and the results are unsatisfactory, you'll have to start experimenting. In addition to the double inversion I mentioned earlier, I rotate my tank a quarter turn when I set it back down so that the new developer is distributed evenly. When I was working with a tank that accepted seven 120 reels, I had a problem like yours which required reworking my agitation method completely. Since the tank was open and the reels were on "sticks," I

Q&A



found my solution in a "lift-and-twist" method that worked great. With agitation troubles, the best solution is experimentation until you find a method that works consistently and well for you.

While my film is washing, I often find thousands of tiny bubbles on the surface of the film. If I shake the reels, the bubbles come to the surface. Is this anything to worry about?

Jim Fawcett, East Haven, CT

Yes, it matters very much. If you are getting bubbles on your film, it means your washer is inefficient and is failing to do its job: getting the fixer off the film and out of the surrounding water. If these bubbles are a constant problem, and can't be solved by increasing your water flow or moving the water inlet and/or outlet, you'd best consider buying a new washer.

How can I make 4x5 prints on one sheet of Cibachrome 8x10 paper? It would save a lot of time and chemicals, but when I try to do it by masking the easel, the margins never seem to come out right.

Steven Steinberg, Timonium, MD

Here's what I'd suggest. Start with two 8x10-inch sheets of mounting board. Cut one into four 4x5-inch pieces, and hinge them with masking tape to the

bottom and top edges of your other 8x10-inch board. What you've made is a replacement easel with four 4x5-inch "shutters."

When you want to print, put your new "easel" in place of your usual one, open all four "shutters," and put your paper onto the bottom board. Close the "shutters," then simply uncover the desired section just before making the exposure. When you've exposed all four sections, process the paper, cut the four prints apart, and you have 4x5 borderless prints! About the only trick is to make sure you focus on your new "easel" with the "shutters" open, so your print is sharp.

I have just taken the plunge from amateur to professional photography. I was overjoyed at seeing your new magazine, since I do all my own darkroom work, along with mounting, framing, and hanging. Now I'd like to know how I can become a member of the Professional Photographers of America (P.P.A.).

Daniel Hawkins, Fort Myers, FL

You can contact P.P.A. for an application at 1090 Executive Way, Des Plaines, IL 60018. Since you've just made the big step, you might want to look into two other professional photographic societies that offer information and assistance to their members. They are: The American Society of Magazine Photographers (A.S.M.P.), located at 205 Lexington Ave., New York, NY 10016, and the National Press Photographers Association (N.P.P.A.), at P.O. Box 1146, Durham, NC 27702. All these organizations offer publications, exchanges of ideas, and a great means of introduction to an exciting profession.

I've read ads from color processing labs that promise to make an "internegative" while they're making my color prints from slides. What is an internegative, and why would I want one?

Al Zilkowski, Miami, FL

The lab is talking about a negative they make from your slide and then use to make a print on color negative-to-positive materials. This negative is usually much larger than your normal negative (4x5 inches or larger) so that the "extra step" involved in making it won't significantly decrease final image quality. There are excellent reasons for using an internegative: the lab can cor-

rect color balance, contrast, or retouch damage that can't be fixed on your 35mm negative. For many purposes, though, one-step positive-to-positive color papers like Kodak Ektachrome RC Type 1993 or Ilford's Cibachrome are giving the internegative stiff competition. But many professional color printers feel they can get slightly better final prints from a well-made interneg.

I've had a strange printing problem for quite a while; my prints seem uneven, not in one spot, but in a sort of "halo" pattern. Recently I ran a test by making a negative of a grey card. When I made a print from the negative, I found that there is a "halo" on the print. What is wrong?

Anita Jodelson, Los Angeles, CA

Probably your light source, condenser, and negative are in incorrect relationship to each other. If your enlarger has an adjustable light source, try moving it up and down until the "halo" seems to disappear—then make another test print. If your enlarger is a "variable condenser" type, check to make certain the condenser is in the right place for the negative size you're using. If your condensers are "fixed," check to see that you've assembled the enlarger head according to the manufacturer's instructions.

After years of devoted amateur status, I decided to edge out a pro and photograph my sister's wedding. It took a lot to convince her, and I wanted everything to be perfect. Imagine my horror when I removed my film from the fixer and found that all the shots had almost-clear "stripes" down the right hand side! What caused this, and what (if anything) can I do?

Cliff Hardin, Passaic, NJ

What you have is not a darkroom problem, but a flash synchronization bloop. Either you forgot to set your shutter speed to the "X" setting, or your camera needs the synch adjusted. When your flash went off, the shutter on your camera wasn't all the way open, and so a portion of the film didn't get the benefit of all that strobe lighting. What can you do? About the only solution I can suggest is that you move, and don't give your sister the new address!

Answers to Q&A are prepared with help of Tony Freeman.

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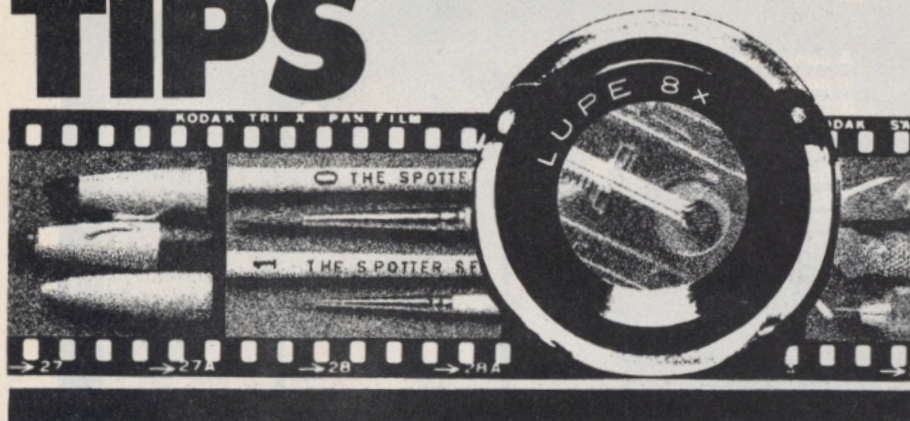
We care about you as a photographer and want the images you send us to be the best possible reflection of your creativity.

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READERS TIPS



Sponge Tips

A plastic soap container from your local 5 & 10 or drug store is great for storing your film-drying sponge. It keeps the sponge clean and dry between uses. To prevent mildew, drill one or two small holes in the top lid of the container.

Also, when my sponges do become frayed or dirty, I simply cut the edge off with my paper cutter. If you don't have a paper cutter, you can do the same thing with a ruler and a razor blade.

Cindy Kessler
Raintree, SD

Punch Code

I sometimes process black-and-white films of different ASA ratings at the same time. To prevent mixing up the film during development, I hit on the idea of coding the ends of the film. I don't rewind the film all the way into the cartridge, so that there's a tongue sticking out. I make—with a single-hole punch from the office supply store—one hole for ASA 125, two for ASA 400, three for 800, and so on.

George Kiley
Green Bay, WI

Recycled Bags

I've started recycling the plastic bags I get at the grocery store by putting them to use in my darkroom. I use a large one to cover my enlarger when I'm not printing. A plastic bag with a couple of holes punched in the bottom keeps my reels and tanks dry and dust free. (The holes allow air to circulate to avoid cor-

rosion.) Another bag tacked on the edge of my enlarging table collects garbage such as wet test strips.

Sam Tunder
Utica, NY

Enlarging Guide

I've found that it's good habit to record enlarging data about the negatives I've printed—*f*/stop, exposure time, development time, etc. Such information makes reprinting the negatives at a later date much easier. But it didn't take me long to realize that my records were virtually useless if I didn't record the image magnification I was using as well. Since my enlarger did not give me this information, I spent a few minutes making some measurements that have subsequently saved me much time and effort.

I put a negative in the enlarger and projected it on the easel so that the image measured 2x3 inches when properly focused. This indicated a two times enlargement. I marked a line and "2X" on my enlarger column directly beneath the edge of the enlarger head carriage. I used a felt marker that adheres to metal (mine was a Sanford Sharpie). Then I moved the enlarger head up so the short dimension of the projected image measured 3 inches; I marked this as my "3X" enlargement position. I continued to the top of the column. Now when I record printing data, I can read the degree of magnification straight from the enlarger. This procedure is more accurate than recording the size of the finished print, which does not take negative cropping into account. The 8X enlargement posi-

tion also makes a good "standard" enlarging head location when making contact proof sheets using light from the enlarger.

Arthur Brigham
Waltham, MA

Thermometer Safe

I was forever misplacing my trusty dial thermometer, so I drilled a hole near the edge of one of my darkroom shelves, using a bit that was slightly larger in diameter than my thermometer shaft, but smaller than the diameter of the dial on top. Now this rather delicate instrument is in a safe place, and I always know where to find it. If your thermometer doesn't have a dial on the top to stop it from falling through the hole, try tightly wrapping a rubber band around the shaft up near the top.

Martha Grebble
Tonopah, WI

Label Tape

I've discovered that white, waterproof surgical tape, which comes in a variety of widths and is easily available at your local drugstore, is easy to write on and quite long-lasting. I use it to label everything from trays to jars of chemicals (date mixed, dilution ratios, etc.).

Candy Adams
Newport, TN

Reel Stopper

Although I prefer stainless steel developing tanks and reels, I've found that the reel moves like a piston in a cylinder when I invert the tank during agitation. The additional movement is enough to cause streaks of increased density, especially around sprocket holes of 35mm or the edges of 2¼-inch film. My quick-and-easy solution is to cut about ¾-inch off the open end of a plastic 35mm container. I place the tube between the reel and the tank cover to hold the reel steady during development.

William Tumath
San Francisco, CA

Silly Putty Cleaner

I've discovered that "Silly Putty," sold at toy counters in the 5 & 10, is a great help in removing dust particles from negatives. The stuff is made from silicon, and it's perfect for dislodging par-

ticularly tenacious bits of dust or grit. Silly Putty leaves no residue and won't harm your black-and-white film. If you keep it in its egg-shaped plastic container, it will last quite a while.

Clifford Landers
Montclair, NJ

Double Roller

After a heavy shooting session, I often get back to my darkroom with more rolls of film to process than I have reels and tanks to process in. So instead of rushing out to buy more, I've learned to wind two rolls of film onto one reel. I tape the end of one roll to the beginning of the other, then fold them back to back before winding onto the reel. You have to make sure that one emulsion does not touch the other. Be sure to practice this technique with scrap film before trying it on important rolls—getting the films wound properly may require some practice. If there are any patches on your processed film where the processing chemicals didn't get to the backing, you can dunk the film after processing in a 12 percent sodium sulfite solution.

Anthony PolICASTRO
Metuchen, NJ

Replenishment Push

I've discovered my own way to push film. I can get an effective ASA of 4000 from Tri-X—without excessive grain—by processing in Kodak HC-110 replenisher diluted 1:15. I develop at 75°F for 5 minutes, and agitate for 10 seconds at 1 minute, 3 minutes, and 5 minutes. Fixing and washing are as usual.

Michael G. Slack
Lakewood, CA

Handy Apron

I keep a carpenter's nail pouch apron in the darkroom and wear it faithfully whenever I'm working. Besides protecting my clothes from splashes and spills, the pockets are great for keeping about-to-be-developed film, reel rods, can opener, scissors, etc. within reach.

Gary Snyder
Rochester, NY

We will give a free one-year subscription to readers who submit tips that we publish. Send your tips with a self-addressed, stamped envelope to "Tips," DARKROOM PHOTOGRAPHY, 609 Mission St., San Francisco, CA 94105.



An EL Nikkor lens is an inexpensive way to add Nikon quality to your enlarger

You take special care with your photography. You invested in a fine camera. You're on the button with your focus and exposure. And, your negatives are everything they should be. But, when you put them into your enlarger, something happens. The crisp definition, the wealth of detail, the rich colors you know are there, just aren't—not in the prints.

Very likely, the villain is your enlarger lens. (Honestly now, did you choose it as carefully as you did your camera lens?) It actually may be "filtering out" the quality in your negatives, instead of faithfully reproducing it.

The solution is as simple as it is inexpensive. Get an EL Nikkor enlarger lens. It's made by Nikon, specifically for the finest color and b&w enlarging. With designed-in sharpness and color correction to meet or exceed the most critical professional requirements. And, there's no focus shift when you stop down, which is made easy by positive click stops and easy-to-see white aperture markings.

Your Nikon dealer offers EL Nikkor lenses from 50 to 360mm to cover formats from 35mm to 11x14, at very affordable prices. See him soon—and see the difference in your enlargements. Or write for Lit/Pak N-15. Nikon Inc., Garden City, N.Y. Subsidiary of Ehrenreich Photo-Optical Industries, Inc. (In Canada: Anglophoto Ltd., P.Q.)

VISIONS FROM THE INSIDE OUT

STAN AUGARTEN

Mark Sokol is a darkroom wizard; there probably isn't a single darkroom technique he hasn't used, and he enjoys going through the list. Multiple printing, figure/ground ratio alterations, tone reversals, intricate masking, high-contrast effects, and collage are merely the ones he employs regularly. Sokol may sketch dozens of pictures of a print before turning on his enlarger, and spend hundreds of hours in the darkroom laboring over a single image. He may just as readily spend thousands of dollars on extra darkroom equipment when his vision of a particular picture calls for special effects.

Sokol is a photographer with an intense and distinctive vision. "I don't get into special darkroom effects because I want to show off or be tricky. I get into special effects because I usually work from a precise mental image that I'm determined to translate into a photographic image in exactly the form I've envisioned."

While most photographers work from the outside in, struggling to describe the outside world at its most typical moments, Sokol works from the inside out. His photos have an unmistakably surreal, dream-like quality that drastically distorts reality, and he'll use any technique to achieve this goal. "Photographers have been seduced by the ability of modern cameras to make simple and mundane instant images," he says. "They don't use technology to facilitate the expression of their visionary powers. That's what I do."

A contemplative man, Mark has a fixed and well-developed philosophy of the photographer's role. He believes that since most of our knowledge of the world comes to us through our eyes, and since our vision is physiologically limited to a small portion of the spectrum, photographers ought to cultivate a style that explores those parts of the world we can't see. Sokol also feels that because our ideas about reality depend heavily upon the vicarious words and images of mass media, our own understanding of the world is distorted. Therefore, he argues, photographers should use their art to challenge the sterile fantasylond of com-

mercials and billboards that surround us all.

How does Sokol do this? "I think the key concepts of our time are probability, relativity, simultaneity, and incongruity. I try to put these ideas into my work by making manipulated and technically experimental images that express the confused nature of things, that force us to confront our alienation." Sokol's prints, composed of his own photographs as well as rephotographed pictures from magazines and TV, thus try to awaken us to our predicament by confronting us with symbolic "feedback" that reinterprets some of our culture's most popular images, such as long-running magazine ads and TV commercials.

Mark's photographic wizardry is performed in two exceptionally neat and well-arranged darkrooms in what used to be the bedrooms of his apartment. In addition to Durst and Omega enlarg-

ers, this 28-year-old photographer owns Nikons, a Hasselblad, and a Sinor view camera. He's built some of his own special darkroom equipment, and customized other equipment to meet his particular needs. Sokol has a great deal of working space; in fact, it seems as if his entire apartment has been given over to photography. The only drawback of his set-up is that he has no water in the darkrooms, and has to carry it in from the kitchen.

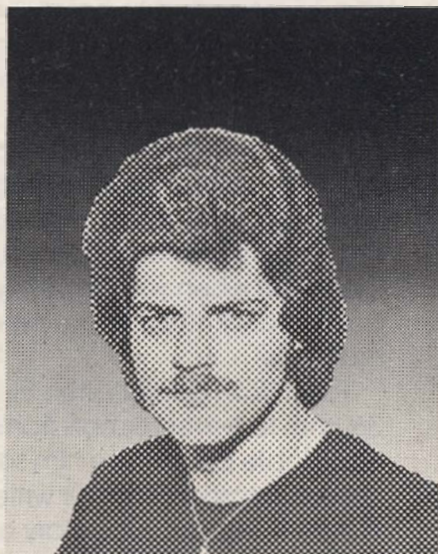
Interpreting his dreams and inner visions "with one eye on the collective dream" as he likes to put it, Mark isn't interested in the accidents and decisive moments that thrill action photographers. "I only shoot when I have a specific image in mind," he explains, "and then I take my camera with me because I know exactly what I'm after." As often as not he'll also set up his own shots. When one of his prints called for a dramatic shot of a blaze, he went to a local beach and built a huge bonfire.

It's in the darkroom that Mark's images are made, and his techniques can be astoundingly complicated. To produce the elaborate multiple print called "Electronic Maze," Sokol shot separate photographs of his face, several strips of computer tape, a static signal from his TV, and finally, a photo of a robot-like figure in a drug company ad. From these initial negatives, Sokol employed a dizzying array of technical manipulations to get the final multiple-image print that expressed his concept.

Complex and multilayered, Sokol's photographs are not immediately understandable. To decipher his pictures, you've got to let your eye wander around the images. You've got to ask yourself what's going on, and since Sokol doesn't supply answers but instead poses questions, your quest may be disturbing and frustrating. Why is that bearded man crawling through the tunnel? Is that a lion's jaw at the other end or merely a cat's? This is not the world you live in, you tell yourself. Or is it? ■

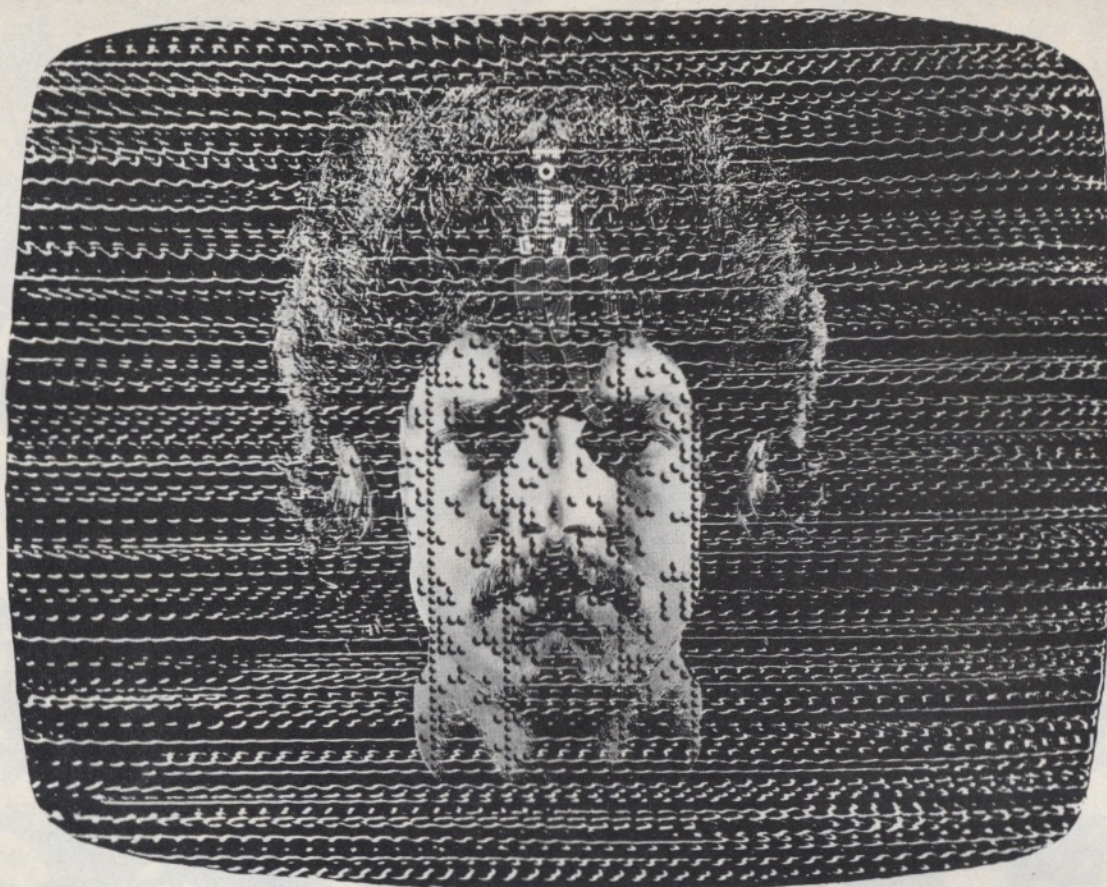
Stan Augarten is a freelance writer on photography, the media, and politics, and is currently writing a biography of journalist Vincent Sheean, called *Observer at the Peep Show*.

PHOTOGRAPHY BY **MARK SOKOL**





Untitled

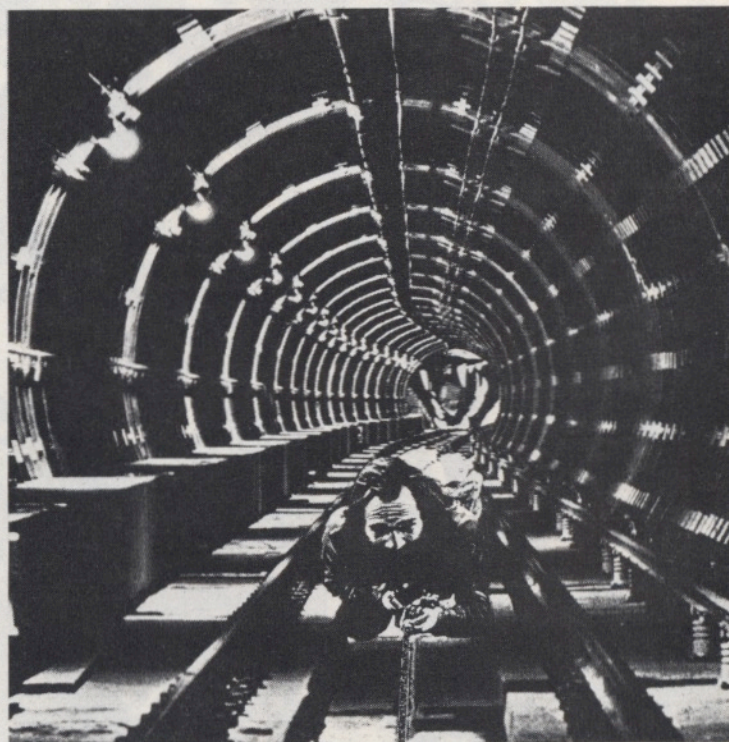


Electronic Maze

Traveler in Strange Land



Untitled



What good is a \$300 camera if all you can make are "drugstore" prints?



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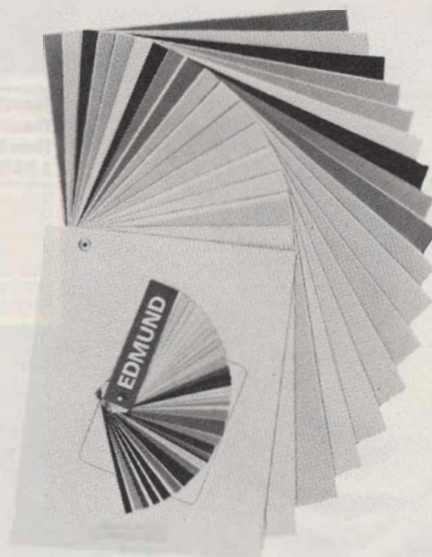
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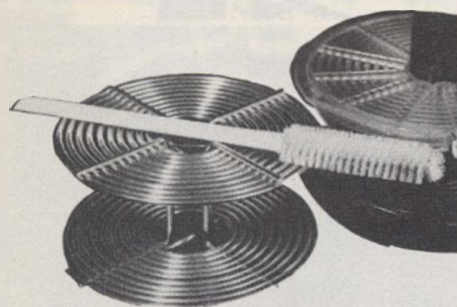
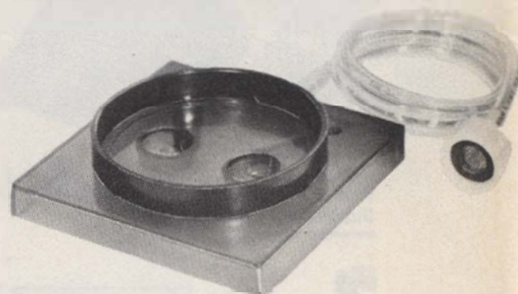
Color Filter Cut-Ups

Now you can have all the colors of the rainbow, plus a few more, with easy-to-cut **Transparent Color Filters** from Edmund Scientific. They're made of cellulose acetate, are heat resistant, and are 0.01-inch thick. You can use them individually or in any combination to achieve special effects by placing them in your enlarger filter drawer. Or you can use them to filter any type of light source. The filters are available in books of 44 different colors, or as a book of six colors, which includes red, green, blue, yellow, magenta, and cyan. They also come in individual sheets measuring 20x24-inches. Available from Edmund Scientific, 7782 Edscorp Building, Dept. D, Barrington, NJ 08007. *List prices:* a book of six colors in 8x10-inch size is \$9.50; 2x2-inch size is \$1.25. Individual 20x24-inch sheets are \$4.50 each.



Remove Excess Water With One Stroke

The **Kustom Print Squeegee** removes superfluous water from RC (resin-coated) paper safely and effectively. It features a thick, smooth rubber blade locked into an easy-to-grip handle. The squeegee comes in two sizes, and is available from Kustom Photographic Supplies, 14924 S. Downey Ave., Paramount, CA 90723. *List prices:* 9-inch blade, \$2.95; 12-inch blade, \$5.95.

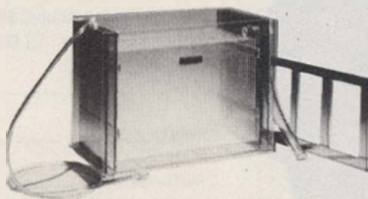


Clean Your Reels

When was the last time you really cleaned your film reels? Simply rinsing reels under tap water and drying them off doesn't clean away chemical and emulsion deposits. **Porter's** has an inexpensive, finely bristled **Reel Cleaning Brush** that scrubs all your plastic and stainless steel reels clean without scratching them. You can also use this brush to clean small tanks and chemical bottle caps. Available from Porter's Camera Store, Box 628, Cedar Falls, IA 50613. *List price:* 69 cents plus shipping and delivery.

Archival Washers

Looking for a print washer specifically designed to meet archival standards? Then check out the **Zone VI Archival Print Washer**. During the wash cycle, water is fed through the top of the unit and the hypo-laden water is drained out the bottom. Each print or roll of film is constantly washed with clean water. Prints don't move during the wash cycle and therefore can't be harmed by abrasion. The Zone VI print washer is available in three sizes, and any of the washers can be used for the archival washing of film on rolls by removing the dividers. The washer is available from Zone VI Studios, Newfane, VT 05345. *List prices:* #APW-1 (Capacity, 15 8x10 or 30 4x5), \$145; #APW-2 (Capacity, 15 11x14 or 30 8x10), \$255; #APW-3 (Capacity, 15 16x20 or 30 11x14), \$365.



Fast Color Print Washer

In less than 2 minutes, the **Western Print Washer Adapter** will completely wash your color prints while they're still in your processing drum. This unique device was made to adapt to Cibachrome and Western Processing Drums, but can be used with any drum that has a 4 3/16-inch diameter. After the drum is placed in position on the Western Print Washer Adapter, a constantly controlled turbulence is created throughout the chamber for the entire duration of the washing cycle. This turbulence creates an almost hypo-free environment, and reduces "wet time," which can be harmful to your prints. The Western is a fully self-contained unit and comes complete with 30 inches of hose, a built-in filter, and connections for faucets with garden hose threads. It is made of unbreakable Cycolor plastic. Available from Pfefer Products, 485 Easy St. Simi Valley, CA 93065. *List price:* \$14.95.

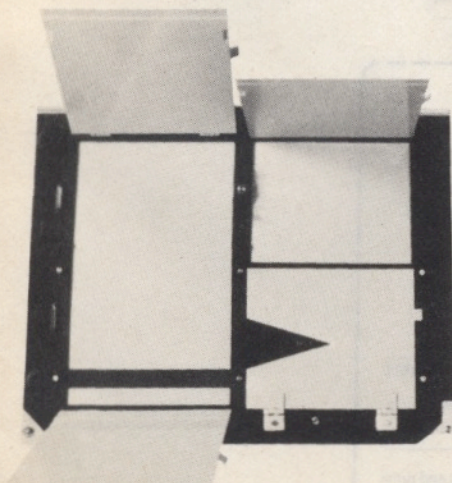
Color This Easy

With the new **Rock-ette Print-maker**, color processing in the home becomes as easy as 1-2-3. Simply load your print into this unique water-jacketed rocker tray with full daylight cover; add 2 ounces of chemicals per 8x10-inch print, and gently rock with your fingertips. Best of all, the water jacket keeps chemical temperatures constant for greater color balance control. The tray can be used for black-and-white developing, too. Available from Doran Enterprises, 2779 South 34th Street, Milwaukee, WI 53215. List price: \$21.95.



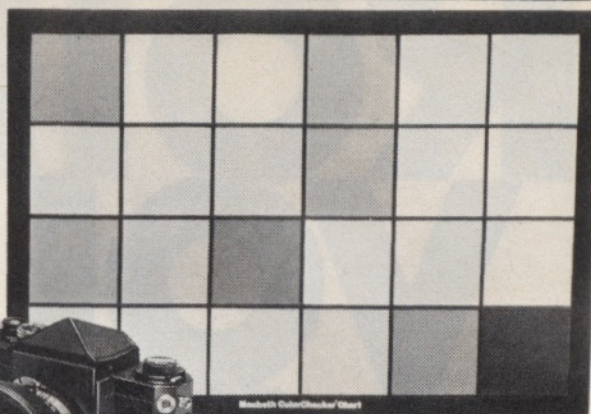
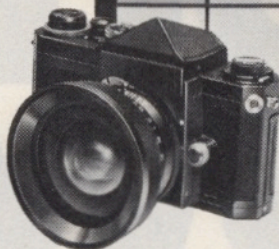
An Easel That Does More

Have you ever wished someone would invent a simple print easel that would let you make either one full-sized print or several smaller ones on a single sheet of paper? Then the new **Samigon 3-Way Multi-Print Easel** is just what you're looking for. It gives you four possible ways of printing on one sheet of 8x10 paper. You can print either: One 8x10, two 5x7s or 5x8s; four 4x5s; or one 5x7 and two 4x5 prints on the same sheet of paper. The multi-print easel has an all-metal construction, magnetized masks, and numbered covers for sure placement of each photo. Available from Samigon Div./Argraph Corp., 111 Asia Pl., Carlstadt, NJ 07072. List price: \$29.95.



Keeping Color In Check

Do you ever feel helpless when it comes to controlling the color balance of your film? Would you like to know how it's going to be affected by different types of light, filters, or processing methods? The **Macbeth ColorChecker Chart** can give you the answers; it's an economical system for comparing the color



rendition of films. The chart contains a test pattern of 24 colored squares, including simulations of human skin, foliage, blue sky, the additive and subtractive primaries, and a six-step grey scale. The 9x13-inch chart is proportioned to fill a 35mm frame. Now you'll be able to see for yourself exactly how your films, lighting conditions, cameras, and lenses influence the color you get. Available from Macbeth, Little Britain Rd., P.O. Box 950, Newburgh, NY 12550. List price: \$19.95.

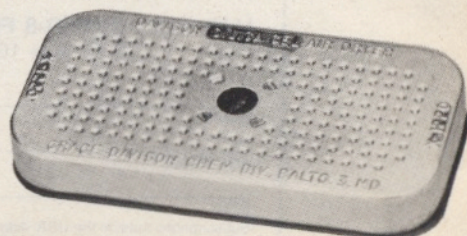


Get The Whole Picture

When you inspect your negatives or contact sheets, it's important to see as clearly as possible. With the **DICO 8x Achromatic Magnifier**, you don't miss a thing. It's made specifically to cover the entire area of a 35mm negative or transparency. A translucent plastic base provides shadowless illumination for clear inspection. There's even a special 3mm-long measuring scale, marked in 1mm graduations along the bottom, for added precision. Available from Direct Image Corp., 1350 S. Monterey Pass Rd., Monterey Park, CA 91754. List price: \$12.60.

Simple Precautions

Protect all your valuable photo equipment, film, and paper from moisture damage simply and inexpensively with **Silica Gel Air Dryers**. Silica gel acts like a sponge in removing harmful moisture from the air. When it turns pink, reactivate it in your oven until it turns blue. Just one air dryer will maintain a safe moisture level in 1.4 cubic feet of sealed space. And there's no mess; it stays in its metal can at all times. Available from most photo stores or from Hunt Sales Co., 13700 Bardon Rd., Phoenix, MD 21131. List price: Two containers for \$7.50.



Roll your own

You've been watching movies ever since you remember. You've got a head full of film ideas. Now it's time to *roll your own* — with a little help from SUPER-8 FILMAKER. Filled with award-winning four-color graphics and exciting features and columns, SUPER-8 FILMAKER is the one magazine you need to get your ideas onto film conveniently and economically. From equipment to technique to aesthetics, SUPER-8 FILMAKER puts you in the director's chair.

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L 5031

A CANDID GUIDE TO PRINT WASHERS

Whether you've taken a photo of a raft shooting the Colorado River or of a delicate still life, you've captured a special moment forever. At least that's the way the theory goes. But unless you've thoroughly washed your print, the very chemical that ostensibly "fixed" your black-and-white shot for all time may someday ruin it. In time, the fixer remaining on your print may irreparably stain or fade your photo.

It's a sad fact of photographic life that fixer is almost impossible to entirely eradicate from a fiber-base black-and-white print. Just getting the fixer level down to safe, "acceptable" amounts requires prolonged washing, because fixer "clings" to the dense, complex web of fibers that compose the paper. That's one big reason for the popularity of RC (resin-coated) papers; due to their plastic construction they can be washed virtually free of fixer in a very short time. But most photographers seeking maximum image quality and print permanence still prefer fiber-base paper because a properly washed fiber-base print is likely to outlast an equivalently "clean" RC print, and look better besides. Trouble is, getting fiber-base prints sufficiently clean can require lots of water and time.

While it's perfectly feasible to wash your prints by hand, without the assistance of any gadget, it's a tedious chore. Print washing is much easier if you use a mechanical print washer. There are many models on the market to choose from, ranging from inexpensive nozzles, hoses, and drains that clamp onto ordinary plastic trays or sinks, to higher-priced rotating drums or special tubs fitted with individual print-holding racks. Naturally enough, prices reflect the size and complexity of the design.

For example, DeHypo's simple hose and outlet, which can be attached to the side of a sink with a suction cup, costs only \$8, while Arkay's Loadmaster, a stainless steel rotating drum, sells for about \$150. A few washers, like Paterson's 10x12 (\$60), have special compartments that keep each print separated from adjacent ones. Other washers, like Kodak's popular Siphon,

\$17, let the prints float around freely in a tray.

In order to help you select the best washer for your needs, I evaluated seven representative washers, covering a wide range of prices and designs. In addition to the four mentioned above, I examined Arkay's 1114-P, an \$18 tray with built-in inlet and outlet; Richard's 24-inch Utility drum washer, which goes for \$75, and the Yankee PW-1, a \$13 tub with attached inlet and drain. The goal of my tests was not to find the best of all possible washers and trumpet it above the rest, but to determine how well each of the seven does its job.

"A good washer should bathe your prints gently, not bombard them with a harsh jet of water."

Since washers differ from each other greatly in terms of print capacity as well as overall design, not to mention price, it's not really possible to compare them directly.

WHAT TO LOOK FOR

What makes a washer first-rate? The primary criterion is simply speed; how fast does the washer reduce residual hypo on the prints to an "acceptable" level. This can be measured quite easily by using Kodak's Hypo Estimator Test (more on this test later). Another important factor in evaluating a washer is the amount of water it consumes, especially if you live in a drought-prone locality.

Finally, print-holding capacity is important, because it determines how many prints you can get clean in a given amount of time.

The speed with which a washer reduces fixer in the print to an acceptable level depends upon three factors: (1) the washer's water-replacement rate; (2) the ability of the machine to keep the prints separated from each other without damaging them; and (3) the temperature of the water you're using.

You can check the first factor with any washer by simply dropping a little dark dye or potassium permanganate solution (available from chemical supply houses) into the washer and noting the time required until the water becomes clear again. In considering the second factor, remember that a good washer should bathe your prints gently, not bombard them with a harsh, potentially damaging jet of water that tosses them about the tray or drum. Yet at the same time it should provide a water stream strong enough to keep the photos from clinging to each other, since that only retards the washing process. Finally, because no washer will control the water's temperature for you, you should keep the stream flowing at 70° to 75°F; colder or warmer will reduce the machine's effectiveness.

TESTING THE WASHERS

To evaluate the seven washers selected, I processed seven large batches of prints (using Agfa Brovira 111, 8x10 double-weight paper) through chemistry maintained at a constant 70°F. Agitating the prints continually, I moved the photos from Dektol developer to indicator stop bath to two trays of Kodak Rapid Fix, immersing the prints in each

fixer bath for 3½ minutes.

Removing the prints, I rinsed them briefly in water, transferred them to a hypo-clearing bath (Kodak Hypo Clearing Agent), and put them in the washer.

I washed the prints for 15 minutes, then removed a photo from each washer and tested it for residual hypo with the Kodak Hypo Estimator Kit, an inexpensive set consisting of a liquid test solution and a translucent strip of plastic bearing four squares of progressively lighter shades of brown. This useful kit quickly gives you a very good idea of the effectiveness of any print-washing technique. To use it, you just blot the print dry, place a drop of test solution on the emulsion and, after waiting 2 minutes, compare the resulting brown stain with the tinted squares on the plastic strip. In my tests, my goal was to achieve, at the least, a fixer stain

"Some manufacturers are unreasonably optimistic about the print capacity of their washers."

equal to the lightest brown square on the strip. Anything less than that was considered an unsatisfactory wash. I also tried to continue the washing until a barely visible "archival" level stain was reached, but I ended all washing after 90 minutes.

HOW THEY COMPARE

My test results are summarized in the chart which accompanies this article. In terms of time, four of the washers achieved an excellent "archival-level" wash in approximately the same amount of time, 40 to 50 minutes. They were the Arkay 1114-P and the DeHypo, Kodak, and Yankee washers. All four have an effective print capacity of five, and they cost from \$8 to \$18—very reasonable prices considering the quality of their washes. Of the "heavy-duty" machines, with print capacities of 12 and up, the Richard Utility Washer stood out as an unusually fast machine.

Frankly, I was surprised that all the washers except the print-holding Paterson required at least some manual tending and attention to make sure that the prints weren't sticking together. And I discovered that some of the manufacturers were unreasonably optimistic about the print capacity of their washers; some machines could effectively process only a fraction of the

8x10s they were supposedly designed to hold.

Now let's take a closer look at each of the washers I tested.

DEHYPO

This simple washing device, consisting of a hose connected to a special drain and suction pad, can be used in sinks and wash tubs of almost any size; therefore, its print capacity and washing performance depend on the size of the sink. For my tests I used a common laundry sink. Even at the rather high flow rate recommended by the manufacturer, it didn't separate prints well and therefore required manual tending. On the plus side, it is extremely inexpensive and washes prints fairly fast.

YANKEE PW-1

This modestly priced washer consists of a 11x14-inch tub with an inlet hose attached to the top and a drain at the bottom corner. It keeps prints separated fairly well, but requires some manual tending. Prints washed for 75 minutes in the PW-1 show absolutely no stain at all: A very good performance.

KODAK AUTOMATIC TRAY SIPHON

One of the simplest washers available, Kodak's Siphon has no moving parts and clamps onto the side of a conventional tray. A nozzle directs a stream of water into the tray which causes turbulence while a siphon draws water out at the same rate. It functions well over a wide range of flow rates, and separates the prints very well if the tray is large enough for the prints to move freely. To test the Siphon, I used a tray approximately 14x18 inches for the 8x10 prints. Note that in some localities the Siphon may violate local plumbing codes; some people argue that the Siphon could reverse its water flow and contaminate clean water pipes.

ARKAY 1114-P

This washer consists of an 11x14-inch tray with a perforated pipe mounted at one end. Water jets out from the pipe across the long dimension of the tray and drains through small holes at the opposite end. It does not separate prints well at the Arkay-recommended capacity of 10 8x10s. With half that number, it still requires tending because top prints tend to float on the surface of the water. But if the prints are separated manually every few minutes the washer does a good job. Owing to its excellent replacement rate, it was able to wash to no stain whatsoever in 90 minutes.

PATERSON 10x12

Paterson's washer is extremely easy to use; no manual tending is required.

Washer



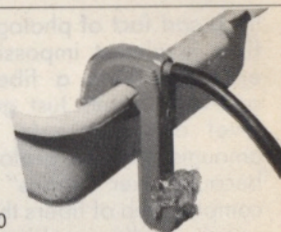
DeHypo

A.J. Ganz Co.
115 N. LaBrea, Hollywood, CA 90036



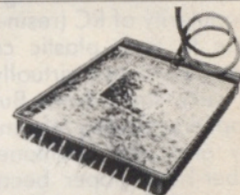
Yankee PW-1

Yankee Photo Products
11295 W. Washington Blvd., Culver City, CA 90230



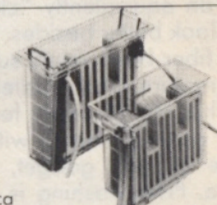
Kodak Siphon

Eastman Kodak Co.
Rochester, NY 14650



Arkay 1114-P

Arkay Corp.
228 S. First St., Milwaukee, WI 53204



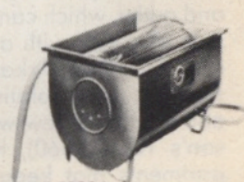
Paterson 10x12

Braun North America
55 Cambridge Parkway, Cambridge, MA 02142



Richard 24" Utility

Richard Mfg. Co.
5914 Noble Ave., Van Nuys, CA 91404



Arkay Loadmaster

Arkay Corp.
228 S. First St., Milwaukee, WI 53204

List Price	8x10 Print Capacity (As Tested)	Water Replacement Rate (Time For Complete Change)	Time To Reach "Acceptable" Stain	Time To Reach "Archival" Stain	Water Consumption
\$8	5	4 min.	30 min.	50 min.	135 g.p.h.*
\$13	5	6 min.	35 min.	45 min.	105 g.p.h.
\$17	5	3 min.	30 min.	45 min.	60 g.p.h.
\$18	5	4 min.	25 min.	40 min.	95 g.p.h.
\$60	12	60 min.	35 min.	90 min.	35 g.p.h.
\$75	25	8 min.	15 min.	30 min.	180 g.p.h.
\$154	20	20 min.	45 min.	90 min.	105 g.p.h.

*gallons per hour

Each of the 12 prints sits in its own plastic compartment. An ingenious hydraulic mechanism moves the basket containing the prints back and forth in the water bath, preventing fixer-laden water from "stagnating" near the print surfaces.

The water consumption rate of the Paterson washer is notably low. But that creates a problem. In the dye test, it took one hour for the color to disappear. This may explain why, after washing to an acceptable stain level in a very respectable 35 minutes, there was very little lowering of the hypo level during the next hour of washing. It would seem that by the end of the washing cycle, the prints are "washing" in what amounts to a very weak hypo bath.

RICHARD 24-INCH UTILITY

This well-designed and constructed washer took only 30 minutes to thoroughly wash 25 prints (the manufacturer's recommended capacity of 100 8x10s is excessive). The water inlet is through a multiple-jet nozzle, which does a good job of separating the photos. Water drains out through a center sump at the bottom. Fluting along the sides keeps prints from sticking to the drum. The only apparent drawback of this washer, aside from the fact that it takes up a lot of space due to its 24-inch diameter, is its relatively high water consumption rate. However, in view of its short washing time and relatively large print capacity, the amount of water required *per print* is actually quite low.

ARKAY LOADMASTER

The Loadmaster is an impressive-looking stainless steel drum washer. The drum rotates, driven by a jet of water from the inlet hose at the bottom of the washer. No print capacity was stated by the manufacturer; taking into account both its large size and its relatively slow water-replacement rate, I tested it with 20 prints. With this number of 8x10s, the full 90 minute wash period was required to reach a barely visible (archival) hypo stain. But print separation was excellent and virtually no tending was required.

One major problem with this washer is the treatment it gives the prints. Several of my test prints were creased and damaged at the corners. This was clearly caused by the moving metal drum, which rotates at 15-25 revolutions per minute, causing the prints to knock close up against the inside of the drum. ■

Les Wisner, a freelance photographer, graduated from the Rhode Island School of Design. His work has been exhibited in galleries in the United States and Japan.

Sometimes what's instinct to the seasoned darkroom enthusiast can be confusing to a beginner. A classic example comes to mind: late one evening last winter, my neighbor George phoned to ask some advice. His prints were coming out badly, and he couldn't tell why. Would I diagnose his problem? I told him to come over.

George didn't walk. When he arrived at my door, sweating, I could tell he was serious about his problem. When I saw his prints I knew why. Print after print was muddy and weak, with grayed-out shadows and dull, lifeless highlights. George recounted his battles with the negative. He'd exposed the paper for a shorter time, but that had only given him a lighter print which was even muddier and more lifeless than the first. He'd tried developing longer; that had helped, but not nearly enough. He was feeling very frustrated.

Fortunately, George had brought the troublesome negative with him. One look and I was sure I knew what was wrong. "What grade of printing paper are you using?" I inquired casually. "Oh, the normal stuff, you know, #2, I always use it. Gives me great prints most of the time."

"Sure," I replied, "but this negative will never print well on #2 paper, because it's not the kind of 'normal' negative that #2 paper is designed for. Your negative and your paper just aren't 'matched.' And when you mismatch paper and negative, the best you can hope for is off-beat results."

"These prints don't look off-beat, they look dead-beat," sighed George.

"If you'd used a #5 paper instead of a #2, they'd probably look smashing," I rejoined.

"But I thought #5 paper is only for low-contrast scenes, like those shot on a very cloudy day. I shot this roll when there wasn't a cloud in the sky."

"Sunny day or not, your

DARKROOM BASICS

KARL REHM

NEGATIVES AND PAPERS— HOW TO MATCH 'EM UP RIGHT

Every negative has a paper "mate"
it will print best on.
Here's how you can find it.



Low-contrast negative.



High-contrast negative.



Normal negative.



Positive made from a normal negative.

subjects were standing in the shade, right?"

"Uh-huh."

"And it looks like you underdeveloped your negatives, too. Did you monitor your developing time and temperature carefully?"

"I always do that, but now that I think about it, the developer I used for this roll had been sitting around for a while. I didn't have any fresh stuff mixed and I was in a hurry to see my negatives." George looked a little em-

barassed.

"Well, that sounds like the source of the problem. But whatever the cause, what you've got now is a negative that's very 'flat' or low in contrast. So you need to use a high-contrast paper, like a #5, to compensate for the lack of contrast in the negative."

George's eyes brightened. "So I've got to evaluate the negative, not the lighting in the original scene, to choose the right paper to print on!"

"Yes. Of course, if you are shooting in contrasty light, chances are you'll end up with a contrasty negative. And if the lighting is flat, the negative is likely to be flat too. But you can never be sure how contrasty your negative will be until you actually look at it. That's because the amount of camera exposure the film gets and, even more importantly, the amount of development you give it, have a great bearing on its final contrast."

George looked delighted. "So all I've got to do is use a high-contrast paper when the negative is flat, and a low-contrast paper, like a #1 or #0, when the negative is too contrasty!" George started gathering his things, clearly eager to go and apply his new-found knowledge in the darkroom.

"Yup, just remember to 'mate' your negative with a paper that is its contrast complement and you'll be well on your way to getting a beautiful, full tonal range in your prints."

George was almost at the door when he suddenly turned, slightly ashen-faced, and said: "Only thing is, I'm not sure if I know how to tell exactly how much contrast a negative has."

It was clear that George needed a brief lesson in "reading" negatives. So I sat him down again and went off to visit my negative file. When I returned, I handed him some negatives. "How would you evaluate the contrast of this one, George?" I inquired.

"It's really dork, so I guess

it's got high contrast," he said. "I'd try printing it on a #1 paper, maybe a #0."

Since I'd deliberately set a pitfall for George, I hastened to pull him out of it.

"Just because a negative is dark doesn't mean it has high contrast. Contrast refers to the difference between the amount of black silver deposited in the highlight parts of the negative and the amount of silver present in the deepest shadows. This particular negative is indeed 'dark,' meaning there's lots of silver in it, but it's dark all over; the difference between the lightest parts (the shadows) and the darkest parts (the highlights) isn't very great. So actually this negative is rather low in contrast, and probably needs a #4 paper to give a print with a good tonal range."

George seemed puzzled. "So I've got to look at the negative and compare the highlights and the shadows to determine the difference between them. That sounds fine in theory, but don't you need some sort of special machine to actually do it reliably?" The look in George's eyes said: "I'm sure there's an easier way!"

"Remember to 'mate' your negative with the paper that's its contrast complement."

"Well," I replied, "if you want to know exact contrast values, you do need a special machine called a densitometer. But to make good prints, you only need a rough idea of the negative's contrast. And the human eye and brain are actually very good at evaluating these kinds of differences. All you really need is some experience to be able to correlate the 'look' of a negative with the paper

HOW AND WHY TO DODGE AND BURN

What can you do to correct a print that's perfect, except for the one area that's a little too dark? Or too light? The answer lies in the processes of *dodging* and *burning-in*.

To lighten an area, you use a small piece of cardboard mounted on a wire to prevent enlarger light from getting on that too-dark segment of the print, while you're making your exposure. That's called *dodging*.

To darken down an area, you admit a little light onto the paper through a hole in a piece of cardboard, after you've made your overall exposure. That's called *burning-in*.

For just pennies you can make excellent dodging and burning tools out of a piece of white cardboard about 11x14, another piece of black cardboard about two inches wide and seven inches long, scissors, tape, and a piece of stiff wire (a section of coat hanger wire is the most popular choice). You make the dodging tool by cutting the black cardboard into a variety of shapes and sizes; squares, circles, and ovals, one to fit every possible problem area. Make them small, ranging from 1/2-inch to about two inches in diameter. Then when you have a dodging problem, you can choose the cut-out that most closely fits the shape of the area you want to dodge. Tape the one you've chosen onto your handle, giving yourself enough wire to keep your hand out of the enlarger light, and your dodging tool is ready to do.

A burning-in tool is even easier to make. Simply cut a

hole in your piece of white cardboard, a little off-center.

Now let's say you've made an initial print, and decided there's a shadow that's too dark, and the sky's too light. Pick the appropriately shaped dodging tool, judging by the shape of the shadow. Put a new piece of paper in the easel, and make your basic exposure, with your dodging tool keeping some or most of the light from falling on the area, depending on how much lighter you want the area. Just make sure you keep the handle of the tool moving so its shadow doesn't show up as a light line on the print.

Here's what you'll need to construct your dodging tools.



Once your basic exposure is done, you're ready to burn-in. Put your cardboard burning-in tool between easel and enlarger, your hand under the hole, and turn on your timer. Position the hole over the desired area (you're using white cardboard so the negative will show clearly on your tool), uncover the hole, and begin to burn. Be sure to move the cardboard sheet around and up-and-down slightly during the additional exposure to avoid a tell-tale sharp area between the portion you've burned-in and the surrounding area.

grade it will print best on."

"And just how do I go about getting that kind of experience?" George inquired fretfully.

"Simple," I replied. "First go through your negative file and pick out six or seven rep-

resentative negatives. Be sure to include problem negatives like the one you showed me today; you want to select a set that spans the entire range of contrasts you're likely to encounter. Then go and invest in a 25-

sheet package of each of the grades of your favorite printing paper..."

"That sounds expensive," George cut in.

"Not really, especially when you consider how much paper you'll save after this little experiment. And if you'd like, you can buy variable-contrast papers and their filters. The filters come in grades that correspond to conventional papers: put them between the enlarger light source and the paper to vary your contrast.

All you've got to do with either paper is to pull a negative at random, look at it carefully by holding it up to a light, guess the paper grade best suited to it, and try to make a good print. If you fail, switch to another grade of paper. When you finally find the optimum paper grade, remove the negative from the enlarger and look at it again carefully. Then pull another negative at random and, based on what you've learned from the first negative, again try to pick the right paper. By the time you've gone through this process with all the negatives, you should be a whiz at matching negatives and papers."

"And then I'll always be able to hit the proper paper grade right on the nose!" George exclaimed exuberantly.

"Well, I won't guarantee that," I declared, "because even professional printers sometimes misjudge a negative's contrast. But by learning to 'read' your negative, you'll sure do a lot better than if you pick your paper grade by hit-or-miss."

"Especially if I miss like I did on this one," said George as he gathered up his prints. As he left, he handed the stack of prints to me. "Please do me a favor and toss these disasters into the trash. I'll send you a good print on #5 paper as soon as I make one!" ■

Karl Rehm is an Oregon-based photography instructor, freelance writer, and author of *Basic Black and White Photography* (Amphoto, Garden City, NY 11530).



Photos by Alan B. Newman

ALAN B. NEWMAN

Looking for a new way to print that offers exquisite tonalities, unmatched permanence, and the satisfactions of hand-craftsmanship? Then check out platinum—the aristocrat of the non-silver processes.

THE PLEASURES OF PLATINUM

As the cost of conventional silver-base paper moves inexorably higher, while quality seems to decrease, more and more photographers are looking seriously at non-silver printing processes as an alternative. For those devoted to producing the finest print possible,

platinum printing can be a most intriguing—and rewarding—option.

Platinum printing has several significant advantages over traditional silver-base printing materials, and over other non-silver processes as well. Perhaps most important is the extraordinary

richness and subtle tonal scale of the platinum image. That is the major reason why photographers like Edward Weston, Poul Strand, and Frederick Evans chose platinum over silver when both were commercially available.

Tonal scale and subtlety of effect



aren't the only advantages of platinum prints, or "plotinotypes." Because there is no surface gelatin emulsion, as in conventional silver papers, a platinum print is truly matte and, viewed from any angle, free of glare. Because the image is imbedded in the paper itself, there seems to be a greater illusion of depth as well as a sense of spaciousness and clarity.

Platinum printing is also the most permanent of the photo-sensitive printing processes. Since the plotinotype is composed solely of platinum metal deposited into paper fibers, the image will last as long as the paper which holds it. A reference in early photographic literature tells of a group of platinum prints lost in a shipwreck, submerged in corrosive salt water for more than 10 years. When divers brought them to the surface, the photographs were well preserved—only the frames had rotted away!

Many photographers have returned

to platinum printing for another, more personal reason. They find in platinum printing a return to an older ideal of artistry—as they slow down and handcraft their final products, they experience an intimate contact with their creations which cannot be achieved otherwise.

Be warned, however: platinum printing also has its disadvantages. First, it is expensive. Costs can range from \$1 to \$2.50 for a 4x5 print, and up to \$10 for an 8x10 print! In addition, the process requires more time, patience, and precision than you may be accustomed to. But once you have ventured into this new territory, you may never return!

A FOUR-STEP PROCESS

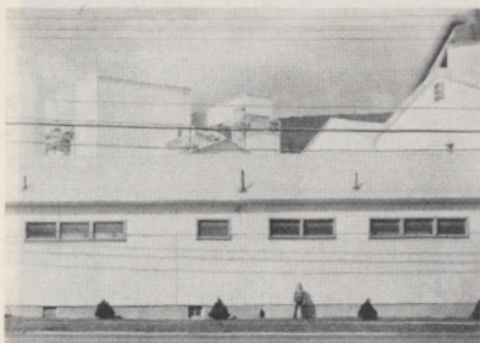
Platinum printing may appear difficult if you are used to buying printing paper rather than making it, but in fact the technique is easy to learn. It involves four basic procedures, and you can perform the entire process under nor-

mal room light (although you should avoid sun-drenched interiors).

Because you must contact print the negative rather than enlarge it, the first step involves making an enlarged negative from your original negative. Second, you sensitize the printing paper by combining premixed solutions of a light-sensitive iron salt and a platinum compound, and brush a measured amount of the mixture onto a sheet of paper. After the paper has dried (which takes only a minute or so), you contact print the negative, using an extremely bright light source, like a sunlamp, and expose for 5 minutes or more. Finally, the paper is processed in a developing bath and three acid clearing baths. Wash the acid from the paper, dry, and your work is done.

ENLARGING YOUR NEGATIVE

There are two ways to make the large negatives that you will need if you shoot small film formats and want enlarged



platinum prints. You may use either a negative-to-negative duplicating film (which must be special-ordered from Kodak), or you may make a large positive on film, then contact print onto another piece of film to produce the final negative.

The easiest method, requiring only one step, is to special-order Kodak Duplicating Film SO-015, available in sizes up to 8x10. Since it has a very short shelf-life, it must be kept refrigerated before use.

With this film, making the larger negative is almost exactly the same as making a normal print. Since the film is orthochromatic—red insensitive—you may use a red safelight, #1A. Remove the film from the refrigerator, and give it at least an hour to come to room temperature. While it is doing so, make a black background for your easel by taping a piece of matte construction paper to the area under the blades. This will avoid any possible fogging of the film through reflection from the base of the easel.

Choose a negative for printing which has a full tonal range, and is neither too flat nor too contrasty. Place it in your enlarger *emulsion side up*. This will ensure that your finished print reads properly from left to right, because the copy negative must be placed *emulsion side down* on the platinum-sensitized surface of the printing paper.

Remove a sheet of copy film from the box and place it in your easel *emulsion side up*—so the notches at the edge of the film are located in the upper right hand corner. Expose and process according to the recommendations Kodak provides with the film—they'll work well for "normally exposed" negatives. Remember: you can "dodge" and "burn" this film just as if it were paper.

If for some reason you can't get

SO-015 or don't want to use it, there's an alternative two-step method for making your large negative. First you make an enlarged positive on continuous-tone copy film, then contact print it onto another piece of the same type of film to produce the final negative. Two good films for this purpose are Kodak Gravure Positive GP 4135, and Kodak Commercial Film 4127.

CHOOSING YOUR PAPER

If you are accustomed to normal photographic printing, the process of making your own sensitized paper will probably be the most intimidating part of platinum printing to contemplate—and the most rewarding to accomplish. The paper you choose must be of ex-

"As you slow down and handcraft your prints, you will experience an intimate contact with your creations."

tremely high quality; 100 percent rag or cotton content and good wet strength are imperative for good image quality and permanence. In addition, the paper must be "sized"—that is, treated with gelatin, arrowroot, acrylic medium, or some other substance that fills the "pores" in the paper to provide a uniform surface for sensitizing. If you haven't sized paper yourself before, you may prefer to buy presized paper.

MIXING UP

Once you have your paper at hand, mix the chemicals to sensitize it. A few com-

panies now offer premixed kits for platinum printing. Starter kits offered by companies like Elegant Images, 2637 Majestic Dr., Wilmington, DE 19810; The Photographer's Formulary, Box 5105, Missoula, MT 59806; or Platinum Photographic Services, Lithia Rd., Ashfield, MA 01330 are a good way to begin, because they minimize the amount of chemical mixing you'll have to do.

If you decide to assemble the necessary chemicals yourself (see the supply list), make sure that you buy only the purest grade of chemicals for your sensitizer—the grade marked "ASC quality." Mix chemicals only with pure deionized or distilled water.

Mix the sensitizer in three separate solutions; label them A, B, and C, and keep them in amber glass dropper bottles available from the local pharmacy. Mix the solutions in water at 100°F, in these proportions (g=gram and ml=milliliter).

Solution A

30ml warm pure water
0.55g oxalic acid
0.25g lead oxalate
8g ferric oxalate

Solution B

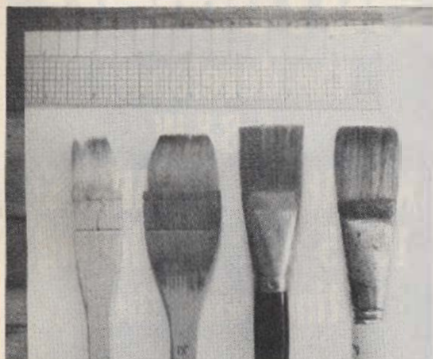
30ml warm pure water
0.55g oxalic acid
0.25g lead oxalate
8g ferric oxalate
0.20g potassium chlorate

Solution C

30ml warm pure water
6g potassium chloroplatinite

These amounts will produce enough sensitizer for about 90 4x5 prints. Solutions A and B will keep 4 to 6 months, Solution C, indefinitely. Since the major

Here are some of the kinds of brushes which are good for applying platinum sensitizer to paper. From left to right: 1- and 1½-inch Japanese brushes, a #14 sableline, and a #16 sable brush. If brushes have iron ferrules the metal should be coated with rubber cement or varnish.



cost of the process is the platinum in Solution C, you may want to mix smaller amounts of that solution. Just be sure that the proportions remain the same: One gram of potassium chloroplatinite to 5ml of water.

SENSITIZING THE PAPER

When you are ready to print, set up your sensitizing equipment on a clean, dry work surface. You will need your three solutions, a shot glass or crucible to mix them in, and three droppers to dispense the solutions. In addition you will need a brush to point the mixture onto the paper. Use a soft brush, fairly short-bristled and flat.

Begin by marking the borders of your print on the paper with four pencil dots. Shake the solutions and warm them slightly if crystals are present in the bottom of the bottle.

One of the nice things about platinum

A 275-watt sunlamp bulb is a good exposure light source for your first platinum prints. Here negative is placed in a Technal proof printer together with the sensitized paper. Bulb-to-paper distance is 15 inches. Bulb requires 2-minute "warm-up" and should be left on for entire printing session.

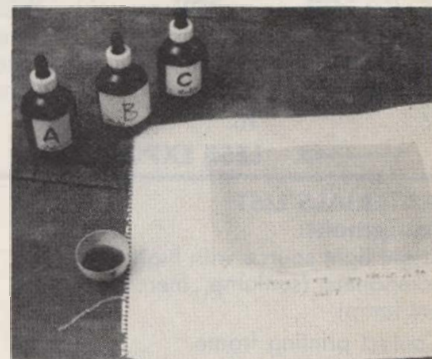


printing is that you can easily control the contrast of the final print by varying the proportions of A and B solutions. The more B solution (relative to A), the more contrasty the paper will be. On the average, a 4x5 print takes a total of 16 drops of solutions A+B+C. The most important fact to remember is: A plus B should equal C. See the accompanying table for the exact recipes for the various contrast grades.

Place the appropriate number of drops of the three solutions in a shot glass, swirl the mixture around, and pour it into the center of the paper. Working quickly and evenly, brush the sensitizer onto the printing surface you had marked off with the pencil. Start by making an "X" to the corners of the print, then use parallel horizontal strokes and end with vertical strokes.

After brushing sensitizer into the area you will print on, let the paper dry. To

To economize on expensive platinum, I only coat my paper where the actual image will appear, as indicated by the guide dots.



speed the process use a blow dryer at "medium" setting. Make sure the dryer stays about 6 inches from the surface of the paper, and keep dryer and/or print in constant motion.

EXPOSURE TECHNIQUE

To expose the sensitized paper, you use roughly the same technique you normally employ for contact printing, with one important exception. The light source you use must be very powerful, as the sensitizer is far less light-sensitive than silver-based paper. A good light source for beginners is a GE or Westinghouse 275-watt reflector flood sunlamp bulb. With the light set directly above your contact printing frame about 15 inches from the print, exposures average around 5 minutes.

DEVELOPING, CLEARING, AND WASHING

Platinum printing uses developing

CUTTING THE COSTS

Probably the greatest deterrent to platinum printing is cost, especially at the outset. While some companies' starter kits allow you to make ten to fifteen 4x5 prints at a cost of less than \$40, buying platinum separately is a rude awakening to the decline of the American dollar. Current prices for enough potassium chloroplatinite to make a standard 30ml of "C" sensitizer solution hovered around \$85 recently! Speculation and the "floating" dollar keep the price unstable, too.

But there are ways to cut the costs considerably. The platinum salt can cost up to \$19 a gram—or as low as \$6.50. The secret lies in buying in

quantity—100 grams or more—and shopping around. Even "starter kits" range from \$10 to \$18 per gram!

Of course few of us plan to use 100 grams of platinum in the near future, nor do we have a spare \$650 lying around. But cooperative buying can solve the problem. If you are a student enrolled in a photography class, your partners are all around you. Even if you're not a student, a notice near the photo-lob of most universities will bring interested students into your "Platinum Co-op." If you aren't near a college or university with photography classes, check around rental darkrooms; put up notices in camera stores; put a

notice in the "Photography For Sale" column of the want ads—in general, do what you can to find other interested platinum enthusiasts.

But there's another option as well, and one you should consider seriously. If you are willing to accept prints that are identical in every respect to platinum prints except for their warm image tone, you may consider replacing platinum salts with palladium salts. The chemical name is sodium chloropalladite, and it's one-third the cost of platinum on the current market. It requires no alteration of technique except a slightly more dilute (1:100) hydrochloric clearing bath.

MIXING UP DIFFERENT CONTRASTS

In platinum printing, you can control paper contrast by varying the amounts of A and B solutions in your paper sensitizer. Here are the recipes I use for a 4x5 print:

PAPER GRADE				
Extra Soft	Soft	Normal	Hard	Extra Hard
8 drops (A)	6 drops (A)	4 drops (A)	2 drops (A)	0 drops (A)
0 drops (B)	2 drops (B)	4 drops (B)	6 drops (B)	8 drops (B)
8 drops (C)	8 drops (C)	8 drops (C)	8 drops (C)	8 drops (C)
16	16	16	16	16
← LESS EXPOSURE		MORE EXPOSURE →		

MATERIALS LIST

Equipment:

Bright light source with high ultraviolet component (sunlamp, mercury vapor, arc lamp).

Contact printing frame.

Clock or timer.

Flat, soft brush (1 to 2 inches wide).

A soft pencil.

Blow gun hair dryer.

Three 2-ounce amber glass dropper bottles.

Four 2-quart jars or bottles.

Glass beakers, stirring rod.

1,000 & 100ml graduates.

Shot glass or crucible.

Chemicals:

100g ferric oxalate (sensitizer).

10g oxalic acid (aciduator).

5g potassium chlorate (contrast increaser).

5g lead oxalate (for good blacks).

500g potassium oxalate (developer).

1 liter concentrated hydrochloric acid (for the clearing bath).

5g potassium chloroplatinite (platinum).

Papers:

Rives BFK; Strathmore 500 1-ply high or medium surface; Bienfang BF Graphics 360. All these are resized and require no special treatment.

chemistry that is totally different than what you use in normal printing. The system requires four trays—one containing a developer of potassium oxalate and hot water, and three "clearing" baths of weak hydrochloric acid.

Before mixing the developer, check the acidity of your tap water with litmus paper. If it is alkaline, add enough oxalic acid to render the water slightly acidic. Mix the developer by dissolving 500 grams of potassium oxalate in 1½ liters of hot tap water, protecting your hands by using surgical gloves or Kerodex barrier cream. The developer can be used at virtually any temperature from 60 to 200°F. Hot developers yield darker, softer, and browner tone prints.

Mix the clearing baths by combining one part concentrated hydrochloric acid of an inexpensive "technical grade" with sixty parts of tap water. When bath #1 begins to yellow, discard it, move #2 to its place, #3 to #2's place, and replace #3 with a new bath.

Dip an exposed print into the developer, agitating steadily, and develop for a minute or so. Development is nearly complete after 10 seconds, and continues almost imperceptibly for the remainder of the time. Remove the print to the first clearing bath, and agitate it often for the next 5 minutes. Move it on

to each successive bath for a 5-minute clearing cycle. Prints should have clear highlights after the last bath. Wash the prints for 10 minutes in an efficient print washer, add a tablespoon of Kodalk or Borax to the wash tray to buffer residual acid, and wash for another 2 minutes. Dry on screens or blotters, taking care to handle the wet papers delicately; they are fragile.

If you wish to "hurry" your test exposure, rinse the test print briefly after the second clearing bath and dry it with a hair dryer. This is not an archival procedure, however, so use it only on prints you plan to discard. And don't try to evaluate platinum prints when they're wet—they "dry down" (darken) considerably.

AND AFTER THEY'RE DRY . . .

Prints can be flattened with an iron or dry mount press when dry, and spotted with Kodak spotting colors, mixed to any shade of brown-black. Cut an overmat from 4-ply museum board and you've made a visual delight unmatched by today's commercially available printing processes, and one that will outlive you and your children! ■

Alan B. Newman teaches platinum printing at the New School for Social Research in New York City and basic photography at Greenfield Community College in Massachusetts.

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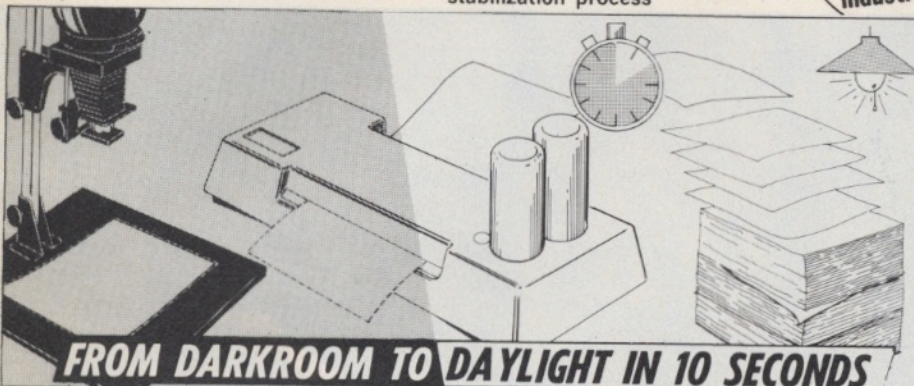
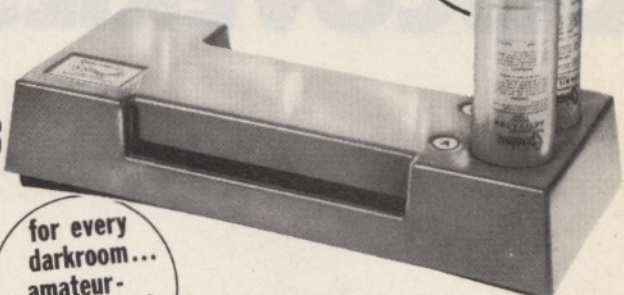
The AUTOMATED PROCESSOR for Kodak RC II Paper Developing and Stabilization Processing

in
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FROM DARKROOM TO DAYLIGHT IN 10 SECONDS

At last, there is a single, economically priced processor for the amateur, professional and industrial user, providing the option to use stabilization paper (for a finished, damp-dry, stabilized print within 10-15 seconds) or to use Kodak's newest, crispest RC papers, with fully automatic developing (10-15 seconds) and subsequent fixing and washing (6 min.), and quick drying.

With the Spiratone PRINT-ALL Processor, you can have the best of both — complete stabilization processing in just seconds, or automation and speeding up the developing portion of RC paper processing. Either way, you save a tremendous amount of time, assure far greater uniformity than you could obtain with manual developing, and eliminate completely the need for experienced help in processing.

How can the PRINT-ALL Processor work so fast?

Both Stabilization Paper and the new Kodak papers, Kodabrome II RC, Polycontrast Rapid II RC and Panalure II RC (for making black & white prints from color negatives) have the developing agent incorporated right into the emulsion, so that, after exposure, they can be "activated" (which takes only a few seconds) instead of being tray developed. Stabilization paper, after being "activated", is "stabilized" and requires no fixing or washing — that's why you can view, handle, work with the damp-dry print immediately as it emerges from the PRINT-ALL (an 8x10", in just 10 seconds after you feed the exposed print into the machine).

Utilizing the same two chemicals, the new Kodak papers are also automatically developed fully after a few seconds (in just 10 seconds for an 8x10" — as compared to a minute or longer in tray developing), then quickly fixed (2 min.), washed (4 min.) and dried (air dried or machine dried) in a conventional manner. The glossy surface requires no ferrotyping for high gloss. And fixing is done in room light so if you have to remake a print, you can be back at the enlarger in 30 seconds rather than waste 3 or 4 minutes as in conventional processing.

All this means that if you feed the PRINT-ALL continuously, you (or any layman) can perfectly and effortlessly process over 150 8x10's an hour — a mind-staggering figure, since you know you can carefully tray-develop only a few dozen 8x10's an hour at the best — and this only with constant supervision by yourself or someone skilled in processing.

What else you should know about the PRINT-ALL

It uses the same components (including the exclusive stainless steel print guide) as do the tens of thousands of Spiratone Stabilization Processors which have been made during the past dozen years and which are in use not only by amateurs, but by newspapers, universities, libraries, police departments, industrial labs and studios all over. The Print-All is made in the U.S.A. by Spiratone, with parts and service readily available.

It's not just a time saver, but produces better quality, more uniform results. That's why many leading photographers use it for all their printing, including that of exhibition prints.

It takes less space than three trays — and for stabilization processing, you need nothing else: no plumbing, no drying. You don't have to watch temperatures — 65° to 80° is O.K., so you can almost always work at room temperatures.

It accepts any print size from 3 1/2 x 5" to 11x14", any of the many brands of Stabilization papers and the new Kodak papers designated with the suffix: "II" RC. A choice of surfaces and grades (including Polycontrast) is also available.

The chemicals last and last — activator does not oxidize like ordinary developer. And the machine's automatic replenishment system keeps the solutions in the trays at the proper levels. What's more; the same chemicals are used for all papers!

Whether you're an occasional or a full time printer, if you run a one man business and need quick turnaround or work under tight deadlines — if you are concerned with quality, simplicity of use and economy, if you appreciate the benefits of space saving and automation, you'll find the Spiratone PRINT-ALL the wisest investment in darkroom equipment you ever made.

HERE'S WHAT ACTUAL USERS OF THE SPIRATONE STABILIZATION PROCESSOR SAY

"My new Stabilization unit works beautifully. I used to hate the darkroom, now it is fun." — P.T.K., Jr., Mass.

"This remarkable machine has saved me countless time and obviated the expense of a darkroom, which I really didn't feel like investing in at this time." — R.J.R., Jr., Colo.

"I recently bought one of your Stabilization Processors and am delighted with it. I do freelance photography in this area plus all the photography for the local paper and the processor has cut my darkroom time from 6 to 10 hours at a time down to one half to 2 hours a night when I have to print. It is the best investment that I made since I bought a camera." — D.H.L., Ohio

"Our Spiratone stabilization print processor has been going strong for five years now. I never expected it to hold up under the constant use we give it, but it has." — Y.P. Inc., Minn.

Approx. Shpg. Wts.: 25 sheets 8x10 sw 2 lbs.; 100 sheets 8x10 sw 4 lbs.; 100 sheets 8x10 dw 5 lbs.; 10 sheets 11x14 2 lbs.; 50 sheets 11x14 dw 4 lbs., sw 3 lbs.; 1 qt. chemicals, ea. 3 lbs.; 1 gal. chemicals, ea. 12 lbs.; 2 1/2 gal. chemicals, ea. 30 lbs.

'Try Them' Packs

If you're not ready to order quantities of supplies with your new Print-All Processor, you can get acquainted with different types of paper with one of our 'Try Them' Packs, specially discount priced when ordered at the same time as the Print-All Processor. (No additional initial order discounts allowed).

*Of course, the chemicals supplied in these kits will process a greater quantity of paper than that contained in the kits.

PRICE LIST OF STABILIZATION and RC "II" MATERIALS

The Spiratone Print-All Processor accepts all continuous tone stabilization papers and stabilization chemistry, and also all Kodak RC "II" papers.

Spiratone UNIVERSAL ACTIVATOR and STABILIZER chemistry are suited for and compatible with Kodak and all other brands of continuous tone stabilization papers, and with KODAK RC "II" papers.

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STABILIZATION CHEMICALS

	Quart, Each	Gallon, Each	Quart, Ea. 6 to 11	12 or More Quart, Ea.
SPIRATONE				
Universal Activator	\$1.89	\$5.49	\$1.59	\$1.46
Universal Stabilizer	2.47	7.97	2.27	1.98

	Quart	2 1/2 Gallon Cubitainer
KODAK		
A10 Activator	\$2.45	\$17.80
S30 Stabilizer	3.15	22.90

KODAK STABILIZATION PAPERS

KODAK EKTAMATIC SC VARIABLE CONTRAST STABILIZATION PAPER

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11x14	S.W.	F-Glossy or N-Lustre	50	22.00
11x14	D.W.	F-Glossy	50	29.70

KODAK RC "II" PAPERS

KODAK KODABROME II RC or POLYCONTRAST RAPID II RC, medium weight in F (glossy) or N (lustre) surface (if not specified, F (glossy) will be supplied).

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8x10	100	Soft, Medium, Hard, Extra Hard, Ultra Hard	28.75
11x14	10*	Medium, Hard, Extra Hard, Ultra Hard	6.50
11x14	50	Soft, Medium, Hard, Extra Hard, Ultra Hard	27.65

*Available in Kodabrome II RC only.

KODAK PANALURE II RC

8x10	25	available in F (glossy) surface	\$ 9.70
8x10	100	ONLY—for making B&W prints from COLOR negatives.	33.95
11x14	50		32.40

SAVE ON INITIAL ORDER for Stabilization Chemicals, Stabilization Paper, Kodak 'II' RC Paper

Order as much of the chemicals, paper listed on this page (except "Try Them" Packs) at the same time as the PRINT-ALL processor and take a

20%

Discount off the prices of Spiratone chemicals

10%

Discount off the price of all Kodak materials

Take advantage of this one time offer — order as much as you expect to use over the next few months. All materials are fresh stock.

PACK 'A' 25 each 8x10" Kodak Stabilization Ektamatic F (glossy) and N (lustre), plus 1 quart* each Spiratone Activator and Stabilizer... **\$15.50**

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PACK 'C' 25 each 8x10" Ektamatic F (glossy) and N (lustre), Kodabrome RCII medium contrast F and N, (total 100 sheets) plus 2 quarts* each of Spiratone Activator and Stabilizer, plus 1 quart* Kodafix Solution... **\$34.50**

DARKROOM DISCOVERIES



AMY JAMES

This image was made by double-printing two 35mm Kodacolor II negatives. The first was an outdoor scene, shot with my Canon and a 20mm lens, and the second was a picture of the starry night sky. I printed on Agfa MCN-111 fiber-base paper, using 8x10 negative-positive Kodalith masks that were punched in register to guarantee accuracy. One mask was used to print in the outdoor scene, blocking out the area where the stars would go, then the opposite mask was used to print the stars. I used an Omega D2 Dichroic enlarger with an El-Nikkor enlarging lens.



JANET FRIES

When I'm out on assignment as a photojournalist, I often see things that interest me, though they're inappropriate for the story I'm doing. This is one of these: a still moment in an otherwise hectic production of Peter Pan. I shot it under existing light, using Tri-X at ASA 400. The print was made on Agfa Brovira III, with a Beseler 23C enlarger.

This issue's centerfold poster follows. Simply turn this page, pull open the staples, release the folded-down poster, and re-fasten the staples. ►



NANCY FINK

My photographs are intuitive responses, more concerned with what I sense than what I see. Hand coloring allows me a chance to explore this personal world. I printed this picture on Agfa Portriga Rapid, using a Leitz Focomat 1-C enlarger. I applied Marshall colored pencils and Marshall oils, using Q-tips and cotton balls. I used matte-surface paper so the color would absorb better.



ROBERT WIDDICOMBE

This picture comes from a body of work reflecting my fascination with the Southwest. Working at dusk, I wandered through streets and alleys, hunting for those things which would best translate visually my experience of living here. I shot this picture with my Bronica 2½ camera on Vericolor VPS 120 film. The lighting comes from a combination of flash and a long (6-second) hand-held exposure, which produced the "ghosting" effect in the trees. I printed the image on 20x24 Ektacolor 74 RC paper, using a Durst enlarger.



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2. Send no more than 20 color transparencies. Your name should be on each one.
3. A self-addressed envelope with enough postage for return mailing plus insurance must be sent with your photographs to insure return. DARKROOM PHOTOGRAPHY assumes no responsibility for return or safety of photographs although we will do all possible to protect and return them.
4. Please do not send photographs that have been published in or are currently submitted to other national magazines.
5. We will pay \$50 for each photograph we publish.

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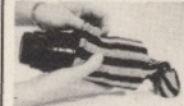


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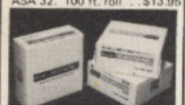
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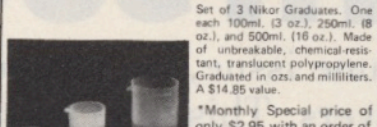
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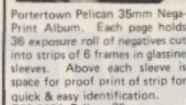
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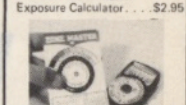
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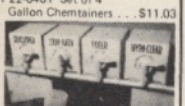
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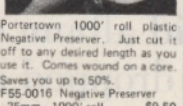
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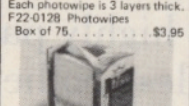
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F55-0017 Negative Preserver 120 size, 1000' roll, \$12.50



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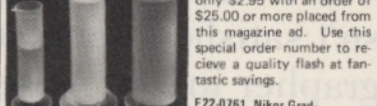
F22-0128 Photowipes Box of 75, \$3.95



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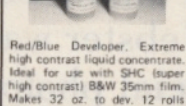
*Monthly Special price of only \$2.95 with an order of \$25.00 or more placed from this magazine ad. Use this special order number to receive a quality flash at fantastic savings.

F22-0761 Nikor Graduates, Set of 3. Monthly Special, \$2.95



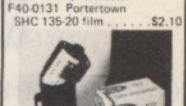
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F35-0019 Red/Blue Dev. \$3.78



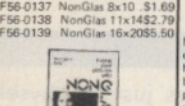
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F40-0131 Portertown SHC 135-20 film, \$2.10



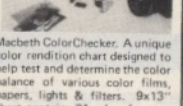
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F62-0024 Sanich Spotting Brush Set of 5, \$6.50



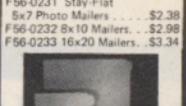
Portertown Darkroom Safe-Lite. Handy flashlight-style safe light adds light to areas of the darkroom that are out of range of fixed safelights. 2 B&W filters incl. Uses 2 D batteries, not incl.

F22-0632 Portertown Darkroom Safe-Lite, \$9.95
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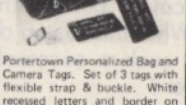
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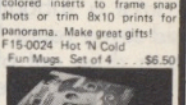
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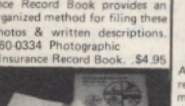
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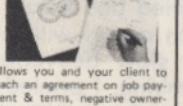
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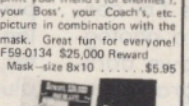
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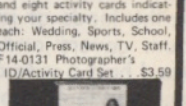
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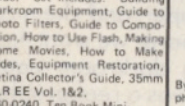
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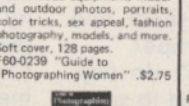
By applying make-up before the photo is taken, time and money can be saved with better results. Book contents include films and lighting, equipment needed, skin care, high key photography, old time effects and more.

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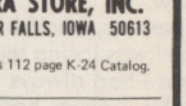
Dignan Photo Formula Book contains 150 do-it-yourself B&W formulas. Includes are many popular old formulas, plus a number of new updated ones. Easy and educational for darkroom fans. Soft cover, 106 pages.

F60-0312 Dignan's 150 Photo Formulas Book, \$7.95



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MASTERS OF THE DARKROOM
AN INTERVIEW WITH GUY WEBSTER
BY SHARON PECKINPAH

COPING WITH SUCCESS

In our May/June issue, we visited a successful printer of album covers. This time we present the flip side.

Guy Webster wasn't satisfied being a highly paid album cover and commercial photographer in Los Angeles. So he dropped out of sight for almost a decade to build a life and an art that was his alone.

He's back on the scene, but with a difference:
he works on his own terms now.

DP: Back in 1970, you were one of the top commercial photographers in Los Angeles, making a lot of money and receiving national recognition for your work. Yet you decided to chuck it all and take a sabbatical in Europe that lasted seven years. What made you decide to drop out of such a successful and rewarding career?

GW: My very success, strange as that may sound. I had been shooting for ten years in L.A. and had reached nearly all the goals I had set for myself in photography. I was financially successful, getting the kinds of jobs I wanted, doing album covers and magazine illustrations. I had a wife and three kids. One day, I suddenly realized that if I stayed as a photographer for ten more years, I'd be doing the same thing: shooting the same celebrities, making the same money. There just wasn't any room to grow.

Besides, I had become so successful that I was losing touch with the satisfactions I had always gotten from photography. I never had any time to do my own darkroom work, which frustrated me, because the darkroom is something



Sharon Peckinpah

I've always loved. As for as I'm concerned, you can't really be a photographer without doing your own darkroom work. It's half of photography. It's equally as creative as shooting. Why give up half the art to somebody else just to make more money? So in 1970 I quit the commercial scene, leased my house, and went to Europe.

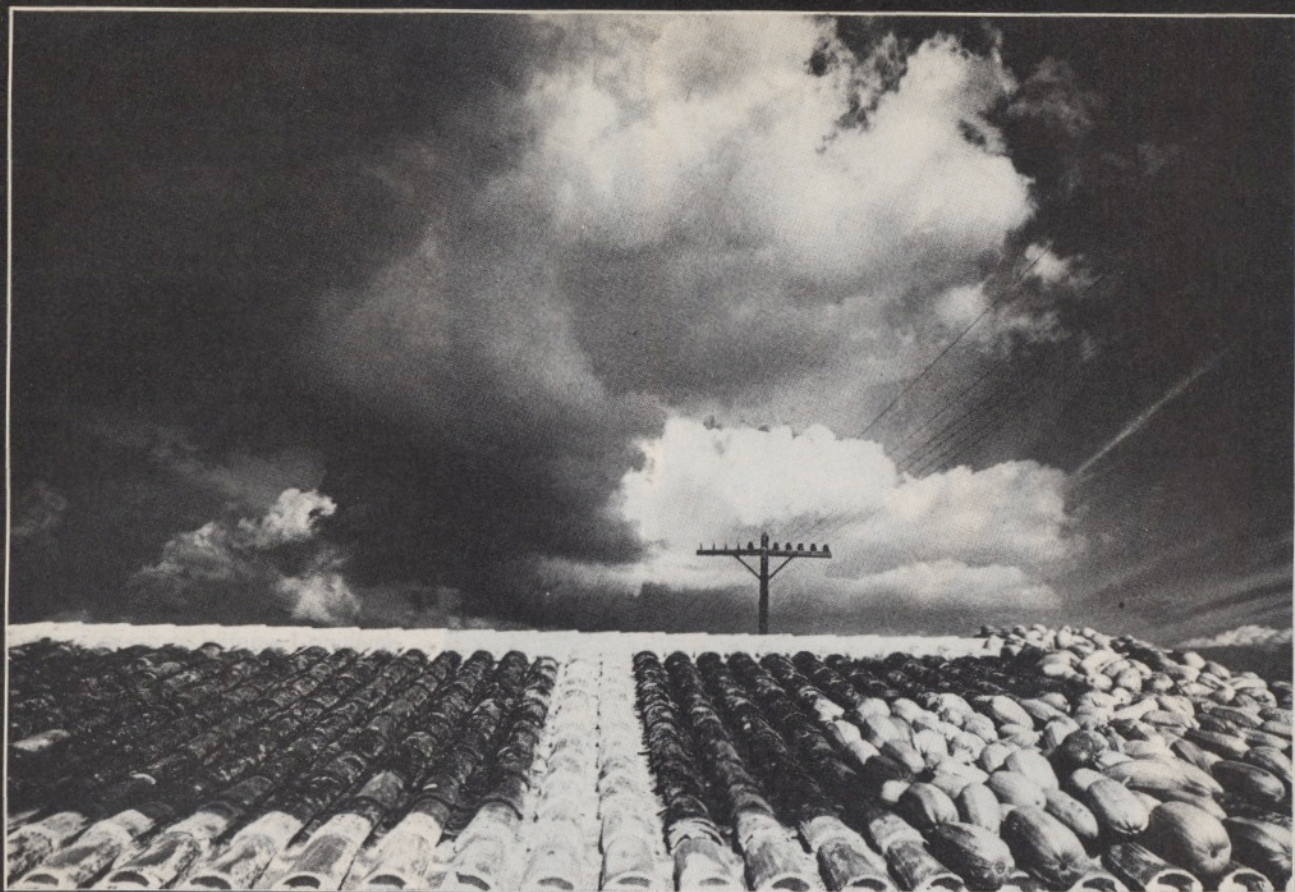
DP: Did you continue to shoot and work in the darkroom in Europe?

GW: For two years I didn't do anything of the sort. I just wanted to sit on the beach, read books, eat fruit, and play with my kids. Then gradually I

started taking pictures just for myself, not for other people. At about that time, an architect friend, an expatriate avoiding the draft, offered to share an apartment on the Spanish island of Minorca with me. The rent was \$50 per month. We divided the space into an architecture studio and a darkroom. I turned a room without water into the darkroom. There was a bathroom nearby, so I mixed the chemicals there and brought them into the larger room. I did all my work on dry running boards without running water. The water wasn't purified and it sure was dirty, but you learn to work with those things. Bad water, slow deliveries, heat, and bad plumbing. I printed a lot at night, because the water and air temperature was so difficult to control.

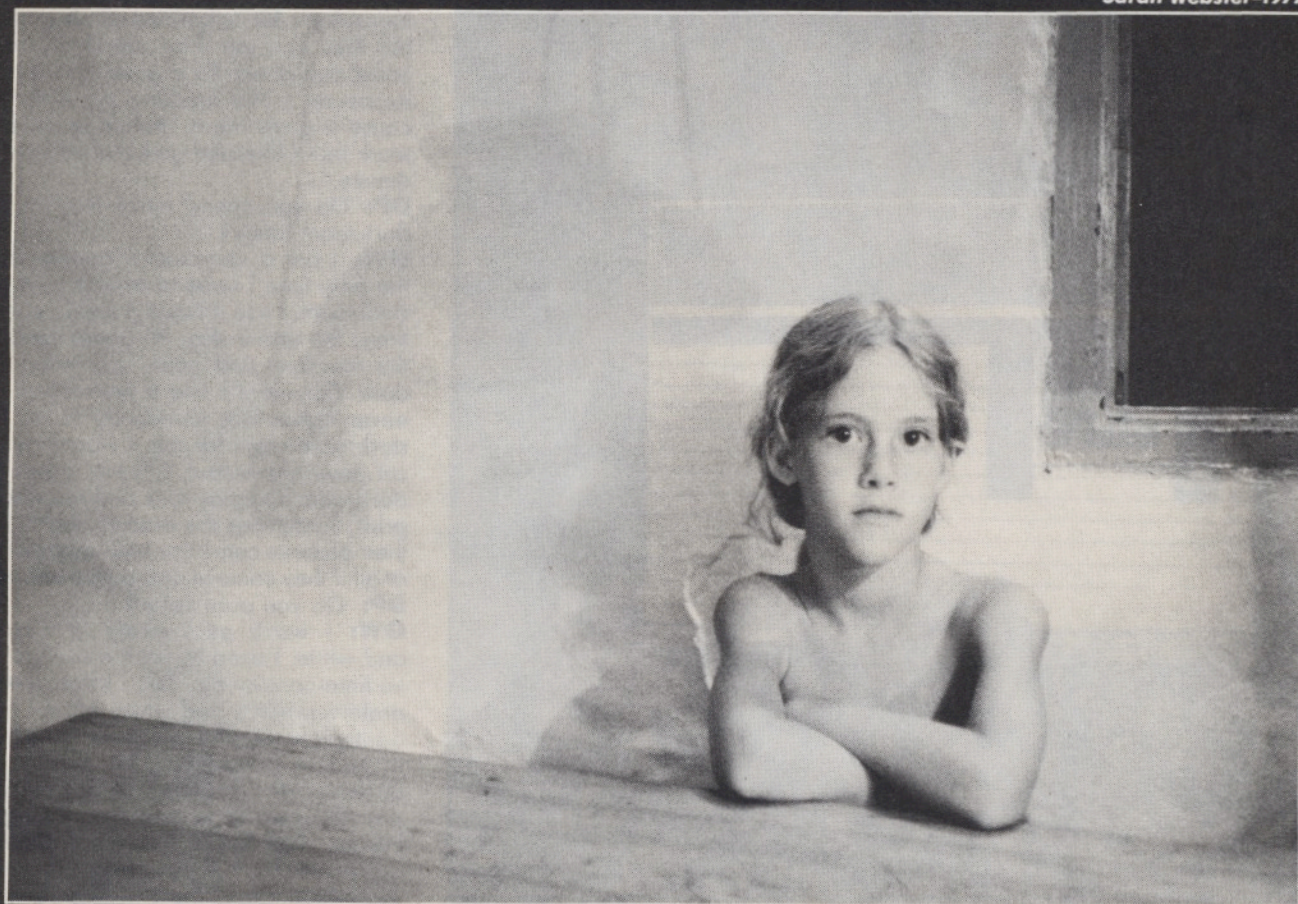
DP: Did you have an easy time finding supplies?

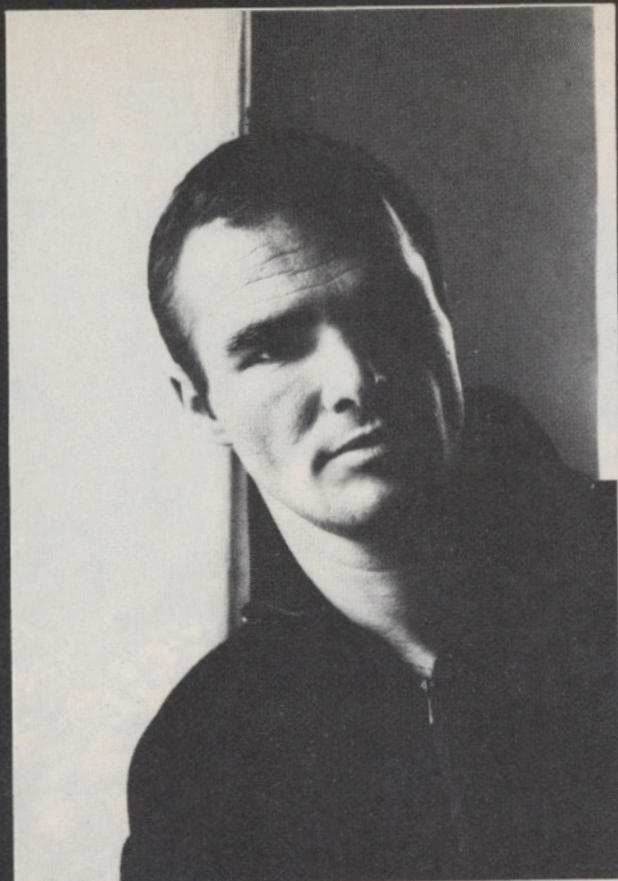
GW: We are very spoiled in this country. We have film, paper, and chemicals available to us whenever we want them. Over there, getting darkroom equipment and materials was a real problem. When I wanted to order a good Durst enlarger, they didn't even know what it



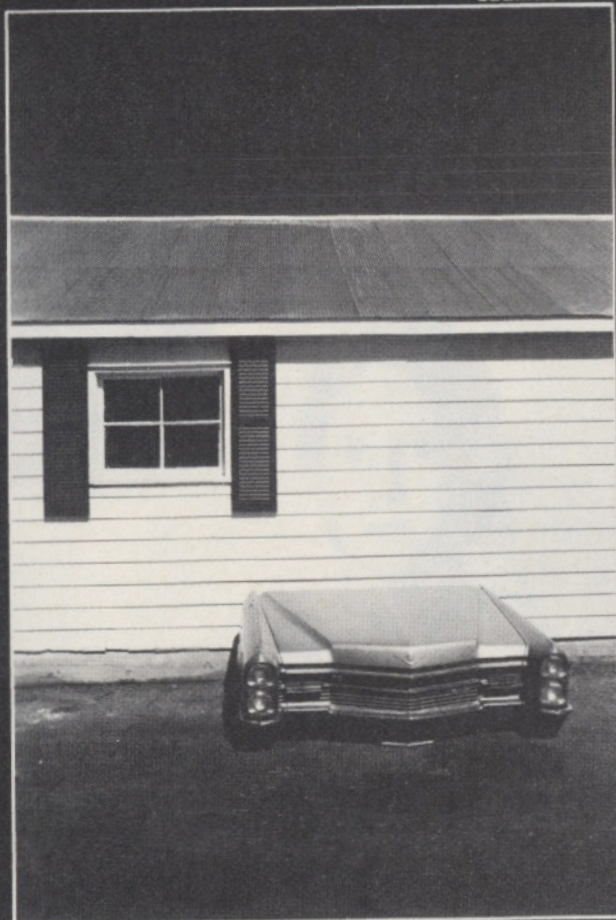
Untitled

Sarah Webster-1977





Burt Reynolds-1968



Cadillac-1977

was. I'd have to take a boat in to Barcelona once or twice a season, to stock up on chemicals and papers.

DP: How did you get along financially?

GW: Things have changed recently, but back in the early Seventies, life was inexpensive in Spain. We had a small income from the lease of our home and managed quite nicely.

DP: Why did you return to the U.S.?

GW: I wanted to be free to explore, and there's freedom to do what you want here, particularly in California. The bureaucracy in Spain was terrible! It seemed that everything I wanted to do was difficult. You could wait six months to get your telephone connected, and the water would unexpectedly shut off from morning to late afternoon. Enthusiasm can take you a long way, but anything I wanted to do was a hassle. After a while, it started to sap my artistic energies.

DP: What kind of work are you doing now?

GW: In addition to my personal work, I'm doing everything from album covers to Wet magazine. I'm the president of Wet.

DP: What is Wet?

GW: It's a very avant-garde magazine. It's a good showcase for photographers and artists. We don't pay photographers for submitted photographs but they can get their credit and become published. It's a good way to get exposure. I like working on Wet because it gives me a chance to publish work that I like and give it a wider audience.

DP: Do you spend much time in the darkroom lately?

GW: I am a very social person, and the only time I have to myself is in the darkroom. I use it twice a week, sometimes the entire day. I'll begin early in the morning and come out when it's dark. For me it's like a meditation. I'll never again hire somebody to do my darkroom work for me. I would rather cut down my output. I like to go in the darkroom and play rock and roll while I print. Sometimes the models like to see their pictures come up, and I don't mind at all if they come in and dance with me.

DP: Do you print color?

GW: I work exclusively in black-and-white. I used to print color but it's so time-consuming. Plus I have always preferred black-and-white. I like 11x14 prints or larger, for whatever magazine or journal I'm working for. I use Agfa papers, Portriga Rapid and Brovira. I got accustomed to that from living in Europe. The Kodak papers were less accessible than Agfa's, and I found I liked them better. Now I use all grades

of paper and all the different surfaces, depending on the job.

DP: Do you have any favorite or unique darkroom techniques?

GW: Well, I'm into heavy blacks in my prints. It's nothing terribly special or unique but it appeals to me. The things that I like best about renaissance paintings are the unexplained dark areas behind a figure or in the foreground, where the darks are almost unreadable. So I print for heavy blacks and if the negative doesn't have it, I'll print to create it. For example, I often make a mask to cover the area occupied by a person on a print and then burn-in everything except that person. It makes the person pop out of the darkness.

DP: How about breaking the rules with chemicals?

GW: No, I try to stay away from that. I have so much printing to do each week

"... you can't really be a photographer without doing your own darkroom work. It's half of photography. Why give up half the art to somebody else just to make more money?"

that I don't have time to try different chemicals. And it's not the chemicals so much that create the print; it's the paper and the exposure.

DP: Does your current darkroom have any special features?

GW: I have a specially constructed table underneath my enlarger. The enlarger is mounted on the wall and it goes up 10 feet high. The top of the table moves up and down so that if I want to do a full 10-foot enlargement I don't have to project it on the wall. The table has made work in the darkroom a lot easier.

I'm also a maniac about dust and cleanliness. My darkroom is the cleanest space around. The only one I've seen that I've admired other than mine is Ansel Adams'. His darkroom is beautiful.

DP: How did you first become interested in photography?

GW: I was a theater arts major in college. I was being photographed in the school play, and the photographer

asked me if I'd like to develop my own picture. I knew nothing about photography, but I said, "sure." When I saw my picture appear magically on that piece of paper, it knocked me out! I went to the library, checked out a dozen books on photography, and began to learn, all without a camera!

When I graduated from college and went into the Army, a friend lent me a Nikon. I shot one roll of film and developed it myself. The prints were amateurish, but I thought my eye was good. So when I got out of the Army I went to the Art Center College in L.A. and asked what they thought of my pictures. They told me: "You have a few things to learn about technique, but your composition is good." And they took me on as a student.

DP: What happened after you got out of school? How did you get started shooting album covers?

GW: It was all an accident, the album cover thing. I played basketball with a guy named Lou Adler, who turned into one of the biggest producers in the industry. One day he was looking at my work and mentioned he was going to start a record company. "Why not shoot the album covers?" he suggested. It was through my association with Lou and Dunhill Records that I got my start. Soon I was shooting covers for groups like the Rolling Stones, the Doors, Simon and Garfunkel, Judy Collins, and right on down the line. I shot hundreds of record covers in the Sixties. It was what I was into... then.

DP: What do you see as your goals now?

GW: Over the years I've learned something about photography. It's that you shouldn't be just a photographer. You don't grow that way. You have to be a photographer and somebody who lives life to the fullest. It's very important not to always take pictures everywhere you go. Instead, bring the experience back to your photography! In Europe I would many times just go somewhere and not even take my camera out of the bag. I missed wonderful photographs but I don't think that's ultimately so important. The media are so overpopulated with photographs and stimuli that my little contribution is pretty meaningless. What I'm interested in is the process of doing photography, and the way it allows me to bring out the beauty in people, their humanness. I don't believe in leaving something posthumously, a legacy. Actually, if I were to leave anything for anybody, it would be for them just to take the time to enjoy each day. ■

Sharon Peckinpah is a photographer, filmmaker, and writer, currently based in southern California.

HERE'S HOW TO CREATE THE PERFECT DARKROOM



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SABATTIER YOUR COLOR PRINTS!

Making dramatic Sabattier prints is surprisingly simple. And the process isn't as unpredictable or uncontrollable as you may have been led to believe.

Many a darkroom photographer, whether eager newcomer or seasoned veteran, has looked with envy at the striking colors and surreal images produced by the Sabottier effect. In fact, many of us have experimented with Sabottier (Soh-boh-tee-yoy) in black-and-white, but have hesitated to try it in color because we're afraid of wasting expensive color paper on unpredictable results.

But Sabottier in color isn't nearly as difficult a technique as you might think. In fact, my experiments have convinced me it's a tool every color darkroom printer can and should have available. True, Sabattier takes a little time and patience, but once you've mastered the basics, that "unpredictability" everyone talks about can actually become the most exciting and rewarding part of the process!

CLEARING THE AIR ABOUT SABATTIER

One of the biggest hurdles to exploring the Sabottier effect is that it's all too easy to confuse it with two other special effects—solarization and posterization. Though all three can give wild colors and apparent reversal effects, they are radically different processes. Solarization is the effect which occurs when we overexpose film in the camera so much that it begins to reverse its response to light and produces a positive instead of a negative in the brightest areas. Nineteenth century landscapes in which the photographer included the sun, for example, often showed a paradoxical black ball in the sky. That's solarization.

Posterization, on the other hand, is a multi-step darkroom process. It involves using high-contrast "litho" film

to convert the initial image into several high-contrast "separations." These are then printed simultaneously to give a "poster-like" image with several distinctly different tones.

The Sabattier effect—even in color—is actually easier to do successfully than either solarization or posterization. It requires only a simple modification to standard darkroom procedure. To wit, midway through developing a normally exposed print, put the paper in a tray of water and re-expose it to light ("flash" it). Then just continue to develop the image. That's it!

"Once you've mastered the basics of Sabattier, that 'unpredictability' everyone talks about can be the most rewarding part of the process!"

Three crucial things happen when you treat your color print as I've described.

1. The partially developed image already on the paper acts as a mask between the "flash" light and the light-sensitive compounds in the print which haven't yet developed. This produces a "reversal" effect, especially noticeable in the highlights, which sometimes become much darker than the shadow areas of the original image, because

the shadows are "protected" by the mask.

2. The partially-developed image acts as a color filter (like a CP filter built into the paper), and this causes the colors in the image to shift.

3. Around the edges of the highlights where bromide waste products from development have built up, a thin, very bright line, called a Mackie line, appears.

With a little practice, you can learn to control—and after a while even partially predict—each of these effects. But before discussing that, let's run through the basics of making a Sabattier color print.

TRAYS ARE EASIER

The simplest way to produce the Sabattier effect is to use trays to process your color prints. They require more darkroom space than processing drums, but pulling the print out of the drum and reinserting it after re-exposure requires delicate handling and real practice. Using trays means that you'll be working in total darkness, or with a dim 7½-watt bulb and #13 dark amber safelight. But you'll find that it's surprisingly easy to get used to trays, no matter how long you've used daylight drums.

Set up the usual number of trays, just as the chemical manufacturer recommends. For Kodak Ektaprint 2 chemistry, for example, you'll need a tray for developer, one for bleach-fix, and your usual washer. Between the developer and bleach-fix, add another tray, filled with about ½-inch of water—enough so you can immerse the print easily.

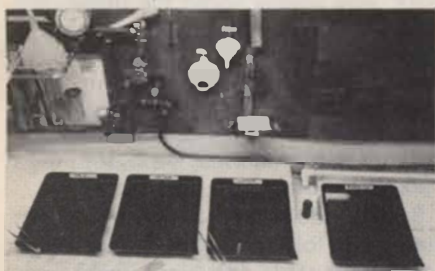
Start with a well-exposed color negative—one with a good contrast range. Remember, the more dramatic

Photos by Jerry Burchfield





◀ **Sabattier and straight versions from the same negative.**



Even if you usually process color prints in a daylight drum, a tray set-up is the simplest way to produce Sabattier.

your negative, the more effective the Sabottier effect you'll get.

Now expose the print as you would normally, using your usual color filter pack or filtration formula. Immerse the print in the developer, gently agitating it until the last 30 seconds of processing time. At this point let the print sit still in the developer. That way the bromide waste materials that will give you Mackie lines can build up between highlight and shadow areas, without being washed away by agitation.

After the developing time is up, shift the print to your water tray and let it settle to the bottom. This should take about 10 to 15 seconds.

THE FLASH TREATMENT

Now "flash" the paper, using a light located above the tray. If you plan to use the safelight above your trays, you'll have to prepare it in advance by putting in a 60-watt bulb and no filter. If it's about 3 feet from the tray, try exposing for 1 second. Make sure you keep the print as still as possible in the tray while you're re-exposing.

Next, remove the print from the water and gently submerge it again in the developing solution. You can't see it, but chances are the affected areas are shifting colors, showing reversal effects, and the Mackie lines are coming up beautifully! Without agitation, let the print redevelop for 1 minute, then put it back into the water for 1 minute more (but do not flash the print again). This "water both" slows the action of the developer and reduces the possibility of streaking, while prolonging the life

of your other chemicals.

After the minute is up, go on with processing as you normally would. If you're new to tray-processing color, remember that the chemicals are being depleted every time you run a print through them. So be sure to consult the data provided with the chemistry you use, to see what compensations you should make after each print. I have found that adding 15 percent to the development time after each print works well. But remember that color chemistry usually must be replaced completely after you've processed several 8x10s.

ANALYZING YOUR PRINT

Now you're ready to see what you've got! Does it look good? Dramatic, bold, and wild? Are the Mackie lines clear? Is the color right? Or does it look dull, streaked, and off-color? If that's the case, don't give up! One of the most seductive features of Sabottier is the radical difference you can get by changing your printing techniques. By manipulating the inherent variables in the process, your next print might be a terrific success!

The best way to work is to limit your experimentation to the exposure and re-exposure stages—at least at first. This means keeping rigorous control over temperature, agitation, processing, and time. Temperature control of your solutions is always the most tricky part about tray processing. The easiest way to keep your temperature consistent is to keep the trays in a water bath to which you regularly add hot or cold water to keep the temperature uniform. I use a standpipe inserted into the drain of my darkroom sink, which gives about a 3-inch bath.

Agitation can be a problem, too. If your print has a mottled appearance, it was probably agitated too much during the second development. So try to be much more careful getting the print into and out of the developer after re-exposing. And remember, too, that you've got to keep the print completely still during re-exposure. If your water tray is floating in a temperature-holding bath, keep it steady. That little bit of movement could be the cause of mottling, too.

TROUBLESHOOTING TIPS

If you've examined your results and think the print is too dark, the original enlarger exposure time, or the re-exposure time, could be the problem. When I think my original enlarger exposure is "in the ballpark," I usually first try to get a lighter print by reducing the re-exposure time. If less re-exposure makes your print lighter but mutes the Sabottier effect too much, try

cutting back on the original exposure and keeping your re-exposure at the original time.

If the color appears unsatisfactory, be sure to dry the print before you make a final judgment. Some print materials, like Kodak's Ektacolor 74RC (resin-coated) print papers, have a bluish tint when they're wet, but change color significantly as they dry.

Are you disappointed by the way your Mackie lines look? If you're careful about agitation, but your Mackie lines aren't dramatic, you might want to try a different negative. If the contrast between light and dark areas in the original isn't good, then chances are small that you'll get a good outlining effect. On the other hand, there are some situations where you simply don't want those Mackie lines. In that case, agitate the print throughout the first development. That way the bromide won't have a chance to build up and cause the lines.

EXPERIMENTING WITH SABATTIER

Once you feel comfortable with the basic strategy of Sabottier processing, you're ready to start learning how to manipulate and control the reversal effect and the color shift. The positive to negative "reversal" effect is largely dependent on the amount of initial exposure you give the print. If you want an intense reversal effect, simply cut your initial exposure. If you want the effect to be more subtle in the highlights (where it normally works the strongest), decrease re-exposure time. If you want the highlights to show a dramatic reversal effect, increase the re-exposure time.

At the same time that you are altering your reversal effects by manipulating exposure and re-exposure times, you will also be changing your color shifts. But you can alter color balance alone, if you want. Simply try different filter-packs when you make your initial exposure.

All the effects I've talked about—color variations, Mackie lines, partial and complete reversal of the image—can be controlled if you develop good work habits. Keep a notebook in the darkroom, and record your exposures, color filtration, and development experiments. That way, you'll be able to reproduce your successes and learn from your failures. You'll no longer wonder, "What will happen if I...?" You'll know, you'll be in control—and you can create with Sabottier! ■

Jerry Burchfield is a photographer and owner of BC Space, a gallery in Laguna Beach, California, for contemporary photography. His work has been exhibited in many galleries across the country and published in numerous magazines and books.

SLIDE SANDWICHES

A step-by-step recipe for serving up tasty multiple-image prints from your slides.

George sandwiched a transparency of opalescent stained glass with an infrared slide of a house to produce this unique effect.



George Post

It can happen as easily as this: You're in your darkroom, working with a group of your favorite slides on a lightbox, sorting and choosing a few that you want to make prints of. Suddenly you notice a familiar transparency sitting directly on top of another and—wow!—they go together, very nicely, each strengthening the other, forming an incredible new image different from either of them. You've just reinvented the sandwich!

If you pick them up together by the mount edges, you can examine the possibilities with a slide magnifier. The first thing to notice is that only one of them is in focus at a time.

Seize a corner of one of the slides and bend it back and forth until you can get a fingernail in between the cardboard layers. Peel the mount in two, and remove the transparency. Then do the same with the other slide. Placing them in your 35mm negative carrier, slip them into your enlarger, kill the room lights, and shine the image onto a smooth white focusing sheet.

On the easel, the image looks good, but maybe not as great as you thought at first. It gives you ideas, though, so you turn back to your lightbox and begin a systematic series of trials and combinations of likely imagery. Now

you're beyond the chance factor, beginning to exercise your creativity.

You will quickly notice that there are certain types of slides that go together well. Silhouettes combine nicely with expansive, colorful images such as sunsets. Slides with large open areas can benefit from the addition of a pattern, texture, or abstract color overlay, especially if the subject matters relate either actually or metaphorically.

As you search for the best combinations, remember that either slide can be flipped or even placed upside down to alter the composition. You will also find that somewhat "light" or thin slides are best, because if you sandwich two slides of normal density, the combination may be too dark to really see any detail. Also, you might want to try combining a slide with a black-and-white negative, a color negative, or a high-contrast litho image.

PUTTING THE SANDWICH TOGETHER

Preparing a sandwich for printing involves more than one might first think. You already know that depth of focus can be a problem, so you must place the transparencies as close together as possible. But even if the two slides are mounted in the same mount, or held

together in a standard negative carrier, heat from the enlarger can cause them to warp apart. This separation causes blurring of one or both of the images.

To solve this problem, you will want to use a gloss negative carrier or, more simply, mount the sandwich in an optical-quality glass slide-projection mount. The most convenient glass mounts I've found are Gepe's Anti-Newton types. Incidentally, this does not mean that the Gepe people think Sir Isaac was wrong about the apple, but rather that the glass in the mounts is specially surfaced to prevent the appearance of bothersome rainbow-colored "Newton Rings" on the print. Gepe System Mounts are marketed by Braun North America, 55 Cambridge Parkway, Cambridge, MA 02142.

Before placing your transparencies in the mount, take them out of their original slide mounts and clean them thoroughly. A glass-mounted sandwich has eight surfaces that can harbor dust. Therefore, obtaining a clean print becomes an exercise in vigilance. But if you can get the sandwich assembled without any dust on the films or inner mount surfaces, you have only the normal outer two glass sides to worry about in the enlarger.

Most dust will come off with a blast from an air can or large squeeze-bulb syringe. Really stubborn deposits may require a gentle sweep with a Q-tip dipped in Kodak Film Cleaner. Also clean the two inner surfaces of the glass mount by steaming them up slightly with your breath, then rubbing gently with a Kodak Lens Cleaning Tissue.

Now place your two transparencies together and position them carefully. You may wish to use a piece of extra-thin 3M #850 Polyester Film Tape (available at photo stores) to hold them in proper register. Although the Gepe mounts have a pair of edge holders inside, if your two slides are offset even slightly, they may not fit, hence the need to tape them together. For sandwiches that are heavily offset, you can use the #16901 Anti-Newton "Super-Slide" mount, which has a larger, square image area. Simply tape the two film chips in place and mask all around them with the #850 tape to seal out unwanted light. Then trim the mask to fit the Super-Slide mount and you're ready to mount it.

PRINTING TRICKS

After you've inserted the transparencies into the mount, check one last time for dust (with a magnifier if possible) and snap the two halves of the mount together. That's all there is to it! And now you're ready to print.

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to print materials: Kodak's Type R or Cibachrome. Cibachrome will give you the best color fidelity and sharpness, although Kodak's Ektachrome 1993 paper will give you nearly as pleasing a result for less expense.

You will want to use a medium or small enlarging lens aperture when printing, since even in a glass-mounted situation the two transparencies together have a fair amount of optical depth. Using a grain focus scope with the enlarger lens wide open you may be able to focus on one or the other emulsion independently. Either focus on the predominant image and assume that

"Suddenly you notice a familiar transparency sitting directly on top of another and—wow!—they go together, very nicely."

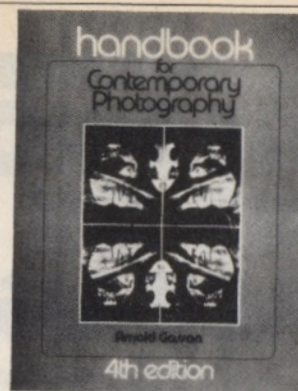
the actual printing aperture will have enough depth of focus to bring the other into sharpness, or else focus in between them and assume the same. At magnifications up to 8x10 print size, f/8 should be sufficient. Beyond that, you may have to stop down even further.

Sandwiches of different emulsions, a Kodachrome with a Fujichrome, for example, will require a compromise filter pack. If you're using Cibachrome, the Cibachrome *Printing Manual* has a chart of suggested filtration differences.

Because the contrast of the two slides "adds" when you sandwich them, you may find that some fancy dodging and burning is necessary to print onto paper all of the details you can see when viewing the sandwich through a magnifier. So it may take two or three tries before you're satisfied with the final print.

But when you pull that print out of the processing drum, you'll feel the elation of having brought an original image through an entire creative process, from conception in your mind's eye, through careful preparation and execution, to the point where the print you hold in your hands is an entity in itself; not just a mixture of two slides but a separate independent image, filled with your own inspiration. ■

George Post is a professional photographer and printer who is noted for his special effects photography such as the pull-out centerfold and the cover of the May/June issue.



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THE PROFITABLE ART OF PACKAGING

How you package your photos can have a lot to do with how well they sell.

The most salable pictures in the world won't put any cash in your pocket if they arrive at a prospective buyer in damaged condition. And pictures sent out but never returned add up to a net loss to you. The key to avoiding these two unpleasant outcomes to your photo-marketing efforts is packaging. While it's true that you can't tell a book by its cover, you certainly can tell a lot about the probable success of a submission of photos by the way they're packaged.

Here's a self-checking quiz designed to test your knowledge of packaging procedures for sending your photos through the mail. If you already know the answers, you qualify as a photo marketing pro. If not, you'll get some valuable tips to help you market your photos successfully without having them ripped, torn, or mangled before they reach their destination. And you'll learn how to virtually guarantee that your photos are returned to you. But here's a warning: some of the questions seem much simpler than they are!

Ready? Here are the questions.

1. What is an SASE?
2. What usually happens to photo submissions sent without an SASE?
3. What's the best way to package your color transparencies and black-and-white prints for shipment through the mail?
4. How important is your mailing label?

Finished scratching your head? OK, let's run through the answers to the quiz, one by one.

1. What is an SASE?

An SASE is a self-addressed, stomped envelope which you must include with your photo submissions. Many photographers have found 9x12 inch envelopes ideal for this purpose. Relatively inexpensive, these envelopes are large enough to accommodate 8x10 black-and-white photos as well as the clear plastic see-through pages which hold twenty 35mm slides. Simply place a label with your return address on the front of the envelope, affix the correct

postage, and fold the SASE into your submission.

2. What usually happens to photo submissions sent without an SASE?

Well, if you're lucky, a kind editor might take the time and trouble to type a label with your address, repackage your photos, and send them back to you. But these good Samaritans of the publishing industry are few and far between. Many editors will simply place your photos in a soon-to-be-forgotten file, a kind of limbo for unreturnable photos.



Here's an example of a well-wrapped photo package.

Others will drop your work into the nearest wastebasket. Cruel? Not really. In all fairness, editors can't be expected to type labels for the return of your photos. And publishers can't be expected to foot the bill for postage and envelopes... especially since many publications receive hundreds of photo packages each week. At *Emergency Magazine* in Carlsbad, California, for example, fully 35 percent of the photo submissions are "unreturnable because they contain no SASE," reports editor Richard Miner.

Incidentally, you should always include an SASE not only with your photo submissions, but also with any letters to editors. More than just a courtesy, the SASE ensures that you'll get a response. Think of it as a round-trip

ticket for all your correspondence.

3. What's the best way to package your color transparencies and black-and-white prints for shipment through the mail?

First, it's important to understand that many photo buyers place great emphasis on the general appearance of a submission when it arrives at their desks. Editors don't like to see photo packages that look as if they've been delivered by the Pony Express. If your submission has a hastily scrawled address, no return address, insufficient postage, or any other flaws that suggest you didn't put your best foot forward, chances are the prospective buyer will respond negatively. Remember that the buyer sees the package before he or she sees the photos. You, of course, remain invisible, but sometimes this can be an advantage.

At Argus Communications in Niles, Illinois, for example, editor Jeanette Karon says that she does review carelessly packaged submissions. "But," she adds, "they'd have to be exceptional to be considered for use." According to Karon, in her experience such submissions almost never tend to be exceptional. Get the message?

At *The Paramount Line* in Pawtucket, Rhode Island, photo editor Tobia Anelunde is somewhat more charitable. "I'll consider these photos for our greeting cards," he writes, "but I'll give instructions for future submissions."

So the appearance of your package is important. If you want to click with photo sales through the mails, here's how to package your work the way most pros do.

The ideal 9x12-inch photo package looks as if it were created by a first-class designer. The envelope bears a neatly typed label with the photographer's return address. Stomped or printed on the envelope are the words "Photographs—Do Not Bend," as well as "First Class," "Third Class," "Special Handling," or whatever instructions you want to convey to the post office.

Inside the package, color transparencies nestle comfortably in plastic see-through holders, twenty slides to a page. Eight-by-ten black-and-white glossy prints snuggle up to two strong sheets of corrugated cardboard. Cut the cardboard so the corrugations of one piece run perpendicular to those of the other piece; this makes the cardboard "sandwich" almost impossible to bend or mangle.

Both transparencies and prints should be marked with the photographer's name, address, and file number (see "Making Money," May/June 1979). A listing of photos (invoice

or transmittal form) together with the all-important SASE provide the final touch. And strong, thick rubber bonds hold the package together. Now you have a professional presentation—one that will survive rough handling in transit and that will tell the photo buyer you're really in business.

Of course, every addition to this basic package is a plus. You can have your local printer run off large envelopes which bear your messages to the post office: "Photographs—Do Not Bend" or "Handle With Care." You can design or purchase a logo to add to your envelope. You can have letterhead stationery printed. For this, you don't need anything fancy—just something that establishes you as a photographer in business to sell photos.

Moreover, you can make each of your packages a kind of mini-advertising piece for yourself and your work by including a listing of some of the photos you have in your files. Even if you don't make a sale with your first submission, your listing in an editor's files might

"The ideal 9x12-inch photo package looks as if it were created by a first-class designer."

contain just the right photo he or she may need days, weeks, or even months later.

4. How important is your mailing label?

Well, did you know that postal regulations state that the address on a package should be easily readable from 30 inches (arm's length)? And in a little booklet entitled *Packaging Pointers* (Pub. 227, Oct., 1978, available at your local post office), postal authorities recommend that the writing should be in "indelible ink or typed on a label." But postal requirements aren't the only reason you'll want to use a label on your photo packages. Simply stated, a neat label tells the editor receiving your work that you know the ground rules.

So much for our quiz on photo packaging. If your answers to all four questions were correct, you've earned your Bachelor of Packaging degree. If not, you'll know what to do the next time you submit your photo packages for sale to publishers and editors all over the country. Good luck, happy photo marketing, and don't forget that SASE! ■

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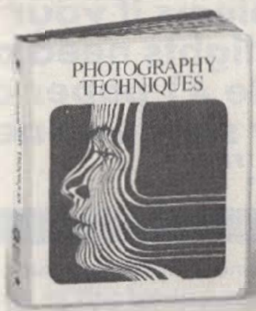


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SOLVE CONTRAST PROBLEMS BY MULTI-FILTER PRINTING

Probably the most difficult darkroom problem for neophyte and advanced pro alike is the negative that's neither flat nor contrasty, thin nor dense, but rather all of these . . . at once. What do you do with the landscape that's flat and gray on the ground, but brilliant and snappy in the sky? Or with a flash photo where the foreground is dense and contrasty, but the background is thin and nearly without detail? Burning and dodging alone won't solve your problems because the real problem is that you've got highlights calling for a grade #1 paper, and shadows requiring a grade #4.

Some photographers just give up on such negatives, but custom printing labs can't do that. We've got to deliver, and we do: By using variable contrast paper and filters and the technique of multiple filtration printing.

ONE PAPER: MANY CONTRASTS

Variable contrast paper is used for this printing technique because it is designed to produce different image contrasts when exposed by different frequencies (colors) of light. Expose a sheet of variable contrast paper such as Kodak's Polycontrast or Ilford's Multi-grade with an intensely yellow light, and it's a grade #1. Give it strong magenta light, and it's a grade #4. The special filters that must be used with variable contrast papers control the color of the light hitting the paper, allowing you to select the contrast you want simply by selecting the appropriate filter.

The basic strategy of multiple-filtration printing is to print the high-contrast areas of the negative through a soft #1 or #1½ filter, and the low-contrast areas through a contrasty #3½ or a #4 filter. That should give you a print that's close to perfect, right? Right! That's the theory; now what's needed is a technique that turns theory into reality.

A CASE STUDY

Let's start with an example. When San Francisco Mayor George Moscone was assassinated last November, news and

magazine photographers struggled to express the deep sense of heartbreak and loss felt by the city's residents. One photographer tried to capture the mood by photographing a newspaper vendor holding the funeral-day edition, his face a mask of sorrow.

The photographer set his camera for the overcast daylight hitting the vendor's face, but the exposure was inadequate for the dark interior of the booth, or his subject's dark clothing. Bracketing the exposure only gave him negatives in which the problem areas were shifted from the shadows to the highlights, i.e. from underexposure to overexposure of portions of his negative.

"Burning and dodging won't solve your problems if your highlights need a grade #1 paper and your shadows need a #4."

On a medium-contrast proof sheet, the photo appeared only as a face and newspaper jumping out of near blackness. Inspection of the negative, however, revealed detail in both the background shadow areas and in the highlights of face and newspaper, but shadows and highlights were of vastly different contrasts. Obviously, the photographer wanted to keep detail in both areas of his final print, so the best way to solve the problem seemed to be multiple-filter printing.

THE PRINTING STRATEGY

In this case, the printer chose to make an exposure of 5.5 seconds at f/8 with a #212 150-watt enlarging bulb through a #4 variable-contrast filter onto Kodak Polycontrast Paper. This gave separation to the tones in the negative's

very thin areas (the darkened interior and the subject's clothes). Since the exposure was short, it left the highlight areas light and contrasty. So two more exposures were needed, both with lower-contrast filters, one for the face, the other for the newspaper. The #4 filter was carefully removed from the filter holder, and replaced with a #2½ filter. Then the face received 2 seconds of burn-in at f/8, to bring out the skin tones. Finally, to cut some of the harshness out of the newspaper and give the white paper a sense of texture, the #2½ filter was replaced with an even lower-contrast #1½ filter. For this last step, however, standard burning-in techniques weren't sophisticated enough; the newspaper's edges were too sharp and ran against such a dark background that straight burning-in risked getting light fall-off into the surrounding areas. By cutting a hole the exact size and shape of the newspaper in a piece of cardboard, the printer made a mask that could then be placed on the easel over the print so only the newspaper received the final burning-in: an exposure of seven seconds at f/8. Developed in Dektol diluted 1:2, the print was rich in information and quite suitable for reproduction, which was the ultimate goal the photographer had in mind for his picture.

SIX TIPS TO FOLLOW

The example I've provided should give you a good idea of how multiple-filter printing can be used to save problem negatives. Now let me give some general tips so you'll be able to adapt the technique to your specific printing needs.

1. Only choose negatives that need multiple-filter printing. There's no reason to waste time with a complicated printing technique when all that's really required is a little more contrast or some traditional burning-in.

2. Once you've decided the negative needs multiple-filter printing, examine both negative and proof sheet carefully, and think out a strategy for exposure. Should the initial exposure be very contrasty? How much will you need to compensate by giving low-contrast exposure to the highlights? How many filter changes are necessary, and in what order do you want to do them? Set your tentative decisions down in your darkroom notepad, then amend your procedure as your test strips and work prints suggest better ideas.

3. Remember to adjust your exposure times for each filter by using the exposure calculator or chart that came with your variable-contrast filters or paper. Different filters admit different

Multiple-filter printing produced an excellent, full tonal range print from this hard-to-print negative.

Roger W. Archibald



amounts of light, so if you switch from a number #2 to a #2½ filter, you must alter your exposure time.

4. Once the paper is in the easel and the first exposure has been made, keep in mind that you mustn't move negative, enlarger, easel, or paper, or you'll get fuzzy prints. So when you remove and replace the filters, you've got to be extremely careful. For that reason, use good, clean, below-the-lens filters unless your filter-drawer moves in and out very smoothly. The same warnings apply to using masks on the paper; set them down very carefully, and do masking lost in your sequence of exposures.

5. Take special care when dodging and burning to avoid overlap into areas you don't want to touch. The resulting halos or dark spots often aren't visible under safelights, so avoid later disappointment and inspect your prints carefully in room light.

fully in room light.

6. If you've got a dichroic color head on your enlarger, you can use the dial-in filters for contrast control and save money and time.

Perhaps the only difficulty with using a dichroic color head is that most can only give you 150 units of magenta, producing a maximum contrast equivalent to a #3½ filter. But new color heads from some companies do provide enough filtration to give a #4 filter equivalent.

Whether you're ready to invest in sophisticated equipment, or plan to slip your inexpensive acetate filters into the filter drawer of your enlarger, multiple-filter printing is a valuable strategy to know. It can make the difference between a negative that gathers dust in your file and a print that you're proud to display. ■

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THE SKY'S THE LIMIT

Our cover this month is a witness of sorts to the strange combination of accident, intuition, knowledge, and good hard work that can produce a truly arresting image.

Photographer Tony Freeman is no stranger to DARKROOM PHOTOGRAPHY: he has written columns and features, and he's the technical consultant who fields those Q&As. When he brought us a feature on block-and-white posterization for our premiere issue, we asked him if he also did posterizations in color. He just smiled and said "I'll ship you some." We liked what he sent, especially one picture of a motorcyclist silhouetted against a brilliantly colored sky. We liked it so much, in fact, that we've chosen it for this month's cover.

How did the final image come about? "It all started on a field trip with some of my photography students," Tony explains. "We were returning from another 'toke,' and saw a group of young dirt bikers making hair-raising sprints along the ridge of a hill. We pulled over and I took an old 2 1/4 x 2 1/4 Mamiya C33, loaded with block-and-white film, out into the field. I turned around and saw this boy waiting his turn, dark against the sky."

How was the straight block-and-white print? "Not too thrilling," admitted Tony, "but the sky was very dramatic."

DARKROOM TRANSFORMATIONS

So Tony took the negative back into the darkroom and went to work. He started by contact printing it onto Kodalith film. But rather than developing for Kodalith's ultra-high-contrast, he treated it as if it were a continuous-tone print. "I developed it in Dektol, a little more dilute than usual, say, one part stock solution to four parts water. It gives a very nice positive image, with full tonality."

Once he had the positive, he contact printed that onto five more sheets of Kodalith, using a registration board to guarantee that all were identically aligned. He exposed them for various final densities, knowing that each increase in exposure would give a radically different image. To get high-

contrast negatives, he developed them in high-contrast developer.

FROM CONTRAST TO COLOR

Now it was time to give the image some color. Tony used Kodak's EB-3 process to turn four of those negatives into dye-accepting masters. "The EB in the name stands for 'etch-bleach,'" he explained, "and it works by totally removing the silver in the negative's emulsion. In this case that meant the clouds. With the silver gone, there's nothing but gelatin there, and that gelatin is a perfect dye-accepter. Meanwhile the areas where there's no silver, the hill and the rider, are unaffected by the etch-bleach, and don't take the dye."

Tony uses liquid dyes from Retouch Methods, applied with cotton swabs and Q-tips. He dyed one Kodalith red, another magenta, the third yellow, and the fourth orange. But the fifth one "I left as a straight block-and-white overlay. On that one the sky is clear, and the silhouette is very dense, so when I sandwich it in with the color-dyed Kodaliths, it makes a black silhouette while letting all the colors come through on the sky."

Now Tony was ready to play with his transparencies on a light box, looking for the right combination of colors to make the final sandwich. "It was only when I stocked them all together that I saw ... wow! ... I had what I wanted. So I taped them all into one sandwich, but it was ugly and bulky, what with all the tape and the thickness of the film. Besides, I had a transparency that I couldn't project because all the layers of film just wouldn't stay in focus at once. So I ended up copying them onto one sheet of color transparency film."

The result? Our cover! Just to round things out, we asked Tony if he had any advice for those who might like to try his technique. "Just tell everyone the second try's a lot easier than the first!" he laughed. ■

Original photo.



Cover shot.



Here are the four dye-accepting masters plus the one straight black-and-white master used to create this month's cover.

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DURST M605 ENLARGER

Basically the Durst M605 is an enlarger for printing 35mm and 2¼-inch negatives in black-and-white and in color. Many enlargers fit that general description. So why choose the Durst over similar units? Color head capability? They almost all have that. Modern technology? Every enlarger built today incorporates more than its share of space-age design; often it's more rewarding to talk about than to use. Features? An enlarger, and every other photographic product, should have the features you need. But features alone don't tell the whole story, either.

Quality of design and construction, craftsmanship in assembly, and reliability in use are what elevate an enlarger from okay to great. Let's see if the Durst M605 fills the bill.

GET IT TOGETHER

With the huge crate unpacked and the M605 spread over half my darkroom, I turned first to its literature. Perhaps because I'm a technical writer, I am particularly demanding in the area of instruction books. Even good products are usually accompanied by inadequate information. Often instruction booklets contain actual misinformation, or are badly translated from another language. Not so with Durst. The M605's operating manual is clear and easy to read and covers everything in a logical order so that you can fully realize the potential of the enlarger.

From the moment you bolt the massive, finely machined column to its substantial baseboard, you realize you're not dealing with one of those toys that pass for equipment in our plasticized world. Each part of the M605 fits together with "snaps," "che-cungs," and "clicks" that suggest fine workmanship. Although putting it all together is a delight in itself, the fun really begins after assembly.

You can make 16x20 enlargements right on the M605's baseboard; if you want to print mural sizes, an extension arm is provided to take the head even higher without sacrificing stability. The sturdy column is marked in both centimeters and inches, with magnification scales for 50mm and 80mm lenses. A large-handled crank allows easy raising and lowering of the enlarger head, plus it automatically locks in place when you release the handle.

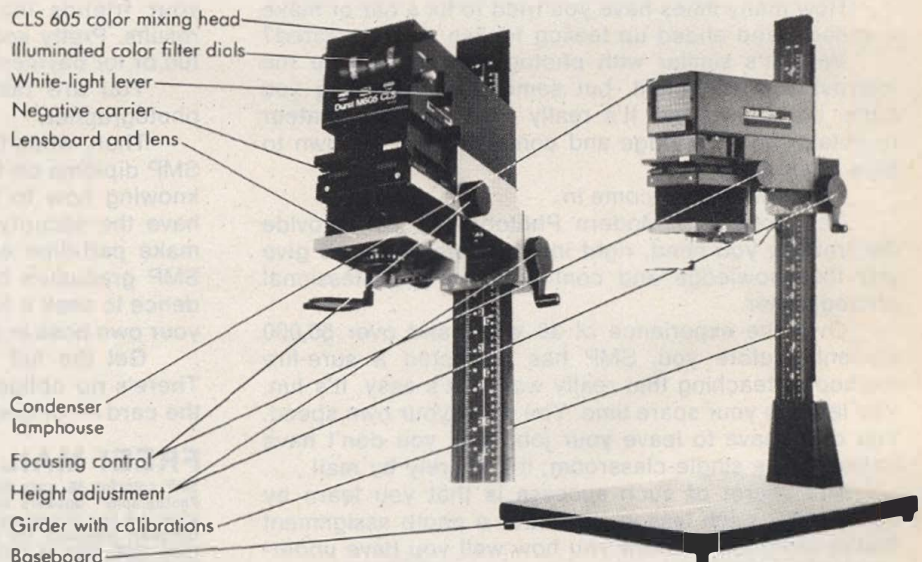
VERSATILE HEAD

Both the M605's lensboard and head are adjustable, as in a view camera, so you can correct converging lines in architectural photography or introduce distortion if that's your bent. The filter drawer in the black-and-white condenser head takes 3x3-inch variable contrast or color printing filters. The light from the 150-watt bulb is directed by a 45-degree angle mirror to the negative, keeping heat to a harmless minimum. Separate condensers are provided for 35mm and 2¼-inch work so that the light is always at maximum efficiency with even illumination for the work at hand. You can turn the head around 180 degrees for floor work, or rotate it up 90 degrees to make poster-size prints on a wall.

traviolet and infrared filters always remain in place in the system.

NOTABLE NEGATIVE CARRIER

The sturdy metal negative carrier opens easily using one hand and stays open at a 90-degree angle while you insert the negative. Guides in the carrier make 35mm and 2¼-inch negative positioning quick and easy. There are four adjustable masking strips which allow you to crop your negative directly in the enlarger, minimizing loss of contrast due to stray light. Negatives sandwich absolutely flat between two pieces of glass, and that means no more trouble with negatives buckling from long exposures! While the glass gave me no problems during my tests, Durst also makes a specially coated glass available as an option for those troublesome halos called Newton rings which result from glass-to-negative contact. If glass bothers you because of dust or other reasons, you can opt for another accessory: individual glassless metal masks to suit your formats. A mask for 35mm mounted slides is also available, for those of us who make prints from slides.



GOING FOR COLOR

The M605's accessory color mixing head has nonfading dichroic filters of cyan, magenta, and yellow in values from 0 to 130. Since Durst's filter values are graded somewhat differently than the Kodak or Agfa standards, its maximum 130 value might be equal to about 190 units on another machine. For those very rare cases where even more filtration is necessary, a switch at the back of the color head adds another 40 red (40Y + 40M) filter. Ul-

The layout of the color head's controls is somewhat unusual. Color-coded knobs for yellow and magenta filtration are located on the right side of the head and the cyan knob is on the left. This arrangement is motivated by the fact that most color prints are made from negatives. However, the filter value read-outs on the front of the color head (which are also color-coded) are in the standard yellow-magenta-cyan configuration. I found it constantly annoying that I kept reaching for the wrong filter

knob. Although the knob layout is probably quite practical for many people, it would help slide printers, particularly those with set habits, if Durst rearranged the read-out scales to match the knob placement. It's to Durst's credit, though, that this was the only irksome feature on the M605.

In the color head, the 100-watt tungsten-halogen quartz lamp and the diffusion system provide even illumina-

"Each part of the M605 fits together with 'snaps,' 'che-cung,' and 'clicks' that suggest fine workmanship."

tion at all magnifications. If you accept a grade #3 paper rather than grade #2 as your norm, the Durst color head can produce excellent black-and-white results as well.

A lever on the color head displaces the filters to allow white light through for focusing, and another lever sets the mixing box for 35mm or 2 1/4-inch sizes. Making consistent color prints from both slides and negatives on the M605 is the natural order of things. No strain, no pain, just results.

INTRIGUING ACCESSORIES

Standard enlargements in black-and-white and color with the swing and tilt controls of a view camera is not the end of the Durst M605 story. If you buy the Siriocam (camera arm) accessory, you can use the enlarger with your camera as a copy stand. Better yet, with the condenser head and the Siriorep copying sheet film holder, you can make large high-quality copies and focus through a window in the condenser head. Four lights that fit to the baseboard (Camflud) make either copy setup more efficient. With these accessories, Durst lets you transform the M605 into the nucleus of a complete photographic system.

After putting the Durst M605 through its paces I could not seriously fault it. Letting it replace my own enlarger (which I'm emotionally tied to) in everyday use, I found it met all my demands. It is an excellent piece of equipment and a bargain by today's standards at a suggested retail price of \$288.50. The accessory dichroic color head is pegged at \$354.50. For further information, write EPOI, Unitron Division, 101 Crossways Park West, Woodbury, NY 11797. ■

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COLOR TEST PRINT SYSTEMS COMPARED

The first print I ever made resembled a mud pie more than it looked like a photograph. I didn't even know what on easel was—I held the paper down with thumb and forefinger. Eventually I learned about easels and, more importantly, I learned how to make test strips so that I could get the right exposure on the paper. My prints slowly improved from mud pies to murky renderings of recognizable objects and finally to images with good contrast. That was way back in my early block-and-white days, but a similar problem faced me when I started printing color: what is the best way to make color test prints? It's a question that, I'm sure, has crossed the minds of many of you as well.

The purpose of a color test print is simply to provide a maximum amount of information about the negative or slide in the enlarger with the least effort and expense. The information should include answers to three important questions: **1. exposure**—is the print too light or too dark? **2. color balance**—are the colors "accurate"? **3. image quality**—is the photo sharp, well-exposed, and what you expected?

Of these three factors, exposure is most important. Too many color printers try to make color filter corrections before the print exposure is even in the ballpark. As a result, they make unnecessary corrections, waste paper, and become frustrated.

The amount of exposure that a print receives determines the degree of color saturation that each of the three color dye layers in the paper will attain. So in order to make useful corrections in a print's color balance, the exposure must be close to what will be used in the final print; otherwise you just aren't seeing what the final colors will look like.

There are three commonly used methods of determining proper exposure/color balance in color printing: a color calculator, a test strip, and a test print series. Let's consider the good and bad points of each.

USING A COLOR CALCULATOR

A color printing calculator is basically a plastic holder containing many little

acetate filters arranged in a grid pattern. The negative is set up in the enlarger as usual, but instead of exposing the paper directly, a diffuser or light "scrambler" is used to "mix up" the light just as it leaves the enlarging lens. This diffused light then exposes an image of the calculator itself, which you have placed atop a piece of photo paper. You choose the square on the processed print which most closely approximates neutral grey (e.g., the 18 percent Reflectance Grey Card made by Kodak) and find the filter combination and exposure time which gave the result by referring to the chart provided with the calculator.

While ingenious in design, the calculator method has certain disadvantages. For one thing, it can be difficult to judge which of the little squares is closest to neutral grey. More important, the method assumes that you're working with an "average" negative; i.e., one whose colors will add up to a neutral grey when they're scrambled together. If there is a predominance of any one color in the image, the filtration recommended by the calculator probably won't yield a satisfactory print. Finally, no actual image is provided by this method, so you can't judge the picture quality from your test.

On the plus side, calculators are very handy for finding the basic filter packs for new batches of paper, and they often do provide a dead-accurate exposure on the second print. Calculators are available from Osawa, Unicolor, Beseler, Kodak and others. Most are designed for printing negatives, but the Unicolor Duocube can be used for printing transparencies too.

MAKING TEST STRIPS

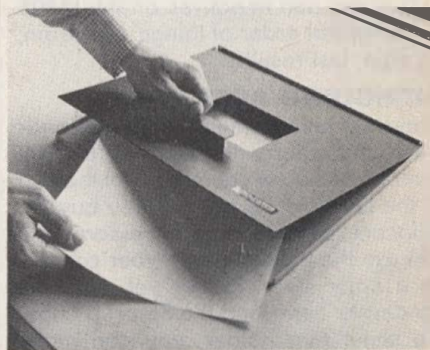
A second method to determine proper exposure/color balance in a color print is to make a *test strip*. The enlargement is set up just as you plan to finally make it (size, cropping, etc.), but after placing the paper in the easel, a series of exposures is made in steps across the paper—just as you make a block-and-white test strip. Using an exposure of 5 seconds at f/8 for example, a narrow band of the paper is exposed, masking the rest with a piece of black

cardboard. Moving from left to right, more and more of the paper is exposed until about five separate strips have been exposed. The band of paper which was uncovered longest would have an exposure of 25 seconds, while the last band would have been exposed 5 seconds.

This method usually gives you a good idea of what exposure to use for your final print, and will also give you some idea of the overall image quality. But what if the single well-exposed strip contains only one main color, such as a red fire truck? If you were more interested in the skin color of the little boy standing on the truck's running board, you'd be sunk. If your corrections were made for the truck only, you would probably make the boy's face too red (remember, the light reflecting off the red point in the original scene makes his face a little too red to begin with).

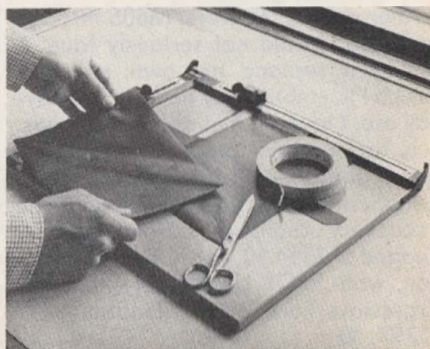
ADVANTAGES OF A "PRINT SERIES"

In my opinion, the most useful color printing test method is to make a *print series* of an important section of the eventual final enlargement. The procedure is to set up for the degree of enlargement you intend to use for the final print, and then to choose a *representative* section of that image—a section that contains portions of most of the im-



The Saunders Color Proofing Easel makes printing color tests a snap.

With a two-bladed easel like the Bogen model shown here, you can get four test prints on a single sheet of paper by masking as shown with black paper.



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"The most useful color printing test method is to make a print series."

portant parts of the picture. Then you print that section at several exposure times, with each exposure being twice the length of the previous one (e.g., 10, 20, 40, and 80 seconds).

Some color processing drums allow you to develop four 4x5s at one time, so the test prints could be printed on cut-up enlarging paper. Other drums do not have retainers for smaller sizes and you must put four prints on one 8x10 sheet. Saunders Photographic Easels (Berkey Marketing, 25-20 Brooklyn-Queens Expressway, Woodside, NY 11377) manufactures a Color Proofing Easel for just this purpose. At under \$30 it is an asset to the printer who does a lot of color.

You can, however, accomplish the same thing with an everyday two-blade adjustable easel (available from Bogen Corp., 100 S. Van Brunt, Englewood, NJ 07631). Set the blades for a 4x4 print and, using black paper, mask off the rest of the easel where the paper is not protected from light spillover. When you are ready to make the tests, insert an 8x10 sheet into the easel as you normally would. Make the exposure. Now rotate the paper 90 degrees and make another exposure. Follow this procedure until you have made four exposures on the sheet.

The advantages of this system can be seen if we consider the fire truck example. If the printer chose a section of the enlargement which contained both the boy's face and the truck, once the properly exposed print was selected, it could be meaningfully judged for color balance. The excess reddishness in the boy's face due to the truck's reflection could be detected and the correcting filtration selected immediately.

While the print-series method does not show you the entire final image, it usually shows you enough for you to evaluate image quality quite reliably. The primary virtue of a test print series is that it will give you a lot of information about your negative (or slide) efficiently, so that you can make reasonably accurate judgments about how to correct the print's color balance. This is not to say that your next print will be perfect—it usually won't be. You will, however, have eliminated at least one extra step by getting the exposure time on the first try. The main task can then be tackled—getting the color right. ■



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PRINT PROCESSING IN A JIFFY

If you've got a lot of printing to do or just a little time to spend in the darkroom it pays to speed up your print processing.

Would you like to make every minute in the darkroom count? Are you, like me, always in trouble with your spouse because you haven't gotten around to making prints for relatives of the lost family reunion?

I like to print. I enjoy spending two or three hours making the best possible exhibition quality print from a really good negative. But I have never really been into printing large quantities of negatives. Alas, my wife has more relatives than the Woltons and they all write letters that begin, "Remember when your husband took a picture of ____? How did that turn out?"

SPEEDY PAPERS

I used to cringe at the sight of the mailperson, fearing another missive from Aunt Betsy. No more. Kodak has come out with three new RC (resin-coated) papers that can really speed up routine printing. They're called Ponolure II RC, Polycontrast Rapid II RC, and Kodobrome II RC. Ponolure II RC is the first RC panchromatic paper designed for making black-and-white prints from color negatives. The other two are updated, improved versions of the earlier Polycontrast Rapid and Kodobrome RC papers.

When I compared the old Polycontrast Rapid with the new RC II version, developing both in a tray of Dektol diluted 1:2 with water, the RC II Poly prints were nowhere near as dull as the older paper. The "whiter whites" Kodak claims are definitely more brilliant. The blacks are also much richer. The veiled sheen over the blocks that everyone experienced using the old Polycontrast Rapid RC was almost, but not quite, gone.

The same was true when I made comparison prints with the old and new Kodobromes: decidedly whiter whites and more intense blocks. Checked against Unicolor block-and-white RC papers, Kodak's blocks fell just a hair short of being as intense and free of

veiling as the Unicolor papers. However, Kodobrome II RC comes in five contrast grades ranging from soft to ultrahard compared to Unicolor's four.

A SURPRISING EMULSION

If you don't read the data sheet pocked in the envelope with these papers before you try printing on them, you will be in for a big surprise. These papers will be fully developed in just 60 seconds. That's because when Kodak brews up the emulsions for coating these papers, they toss in a hefty dose of developing agents. That's right—there's some developer right in the paper! When your exposed RC II print hits the developer in your tray, the activating chemicals in your paper developer combine with the developing

"What if you've been conned into shooting the Rotary Club Golf Tournament and everybody wants prints?"

agents in the RC II emulsion, forming instant fresh concentrated developer right where it does the most good.

The reason Kodak went to the trouble of incorporating developers into the new RC II papers is simple: they were designed to take full advantage of the rapid-processing capabilities of the incredible Kodak Royolprint Processor Model 417 for professional labs. About the size of a modest desk, the 417 can take an exposed sheet of RC II paper and spit it out developed, fixed, washed, and dried in 55 seconds!

Unfortunately, the Royolprint machine costs \$7990, hardly making it an intriguing investment for the home

darkroom. But if you really want to bong out your RC II prints as fast as possible without the help of a machine, try developing in straight Dektol for 30 to 40 seconds with vigorous agitation, 15 seconds in fresh stop bath, and 1 minute in fresh Kodak Rapid Fix without hardener, diluted for fixing films. Wash the fixed prints for 4 minutes and dry as you would with any other RC paper.

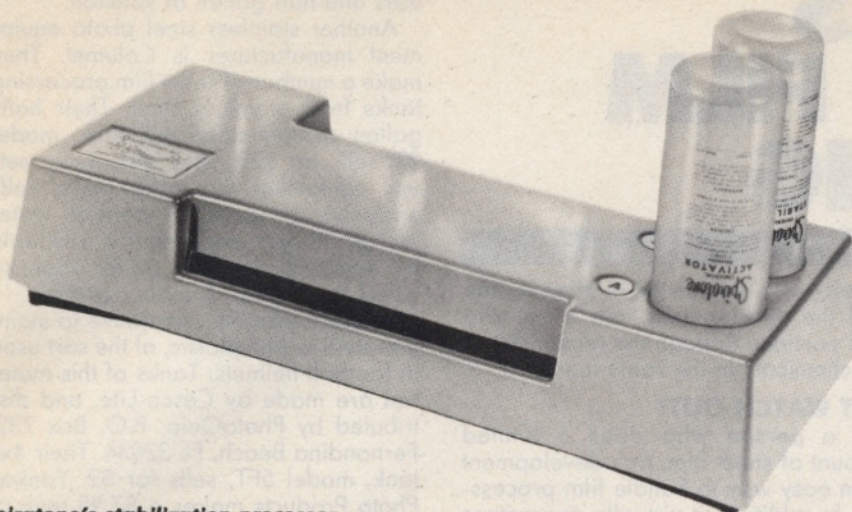
Because development in straight Dektol goes so fast, the entire sheet of exposed paper must be quickly immersed in the developer; otherwise uneven development can be pronounced. This means doing a sheet at a time in the developer with constant agitation. Batch processing is impossible, but you can be examining your single print under white light in 60 to 90 seconds. This method is fast, but it is awkward if you have been conned into shooting the Rotary Club Golf Tournament and everybody wants prints.

CAN YOU STABILIZE?

Is there an easier way to use these quick-print papers? Can you do what Kodak, in their RC II data sheets, tells you not to do? Namely, can you process these new papers in a stabilization print processor? After some experimentation, I've concluded that the answer is "yes."

Stabilization processing is a fast-processing method primarily used by newspapers, wire services, and printing houses. It's great for getting prints very quickly or in quantity with perfect uniformity. You enlarge your negative on a special stabilization paper, a fiber-base printing paper that has developing agents incorporated in the emulsion, just like the RC II papers I've discussed. Then you insert the exposed paper into a stabilization processor. Inside the processor are two trays. The first is filled with an "activator" solution which triggers the developing agents built into the paper. The second tray holds a stabilizing solution that converts the unexposed and undeveloped silver halides in the emulsion into "relatively" stable colorless compounds. Three sets of rollers inside the machine apply the activator solution, squeeze it off, push the paper into the stabilizer, and eject a damp-dry stabilized print.

The whole operation takes just 15 seconds from insertion to print ejection. The image starts to deteriorate after 6 months, but if you need a permanent archival print, you can still fix and wash the print months later. I worked with these processors years ago in a commercial lab and enjoyed the speed with which I could knock out prints. So, when I found out that Kodak was producing RC papers with developing agents in



Spiratone's stabilization processor.

the emulsion, I had to try them out with a stabilization processor.

Spiratone makes a stabilization processor that they sell for \$179.95—quite inexpensive for a machine of this type. They also advertise it as a machine processor for RC II papers, with the proviso that you must fix the RC II paper in a tray after it comes out of the processor. I got one as soon as I could. It came packed with one of the most thorough and clearly written sets of assembly and operating instructions I have ever read.

I filled the Spiratone processor with their activator and stabilizer solutions. This is done by screwing a special valve cap into the bottle of solution, turning the bottle upside down and inserting it into the machine. The valve cap fills the tray to just the right level, then stops the flow of solution from the bottle until more is needed. A quart of activator will develop 150 to 200 prints with identical uniformity.

Exactly 15 seconds after I inserted an exposed sheet of RC II paper into the processor, out it came. Following Spiratone's instructions for RC II paper, I put it in a tray of fixer for 10 seconds and then turned the lights on. To my disappointment, the print was dull and lacking in contrast—but it was evenly developed. I tried repeating the process with Kodak's stabilizer chemistry. Same result.

KODAK SENDS A CLUE

Two days later I received a bulletin from Kodak titled "Why Stabilization Processors Are Not Recommended For Kodak Developer-Incorporated RC Papers." First, the prints wouldn't be stable because stabilization requires that the paper base be saturated with stabilizer to maintain stability. This is

impossible with RC papers because the stabilizer can't get through the resin coating. But Spiratone had already spelled that out in the RC II instructions. You have to fix the paper after it leaves the processor.

"Presto! Machine-developed prints ready for fixing in 15 seconds."

Second, the print in a stabilization processor only gets as much activator as the roller brings up from the solution tray. In the Royalprint processor, however, the paper is briefly immersed in the activator. That was all I needed to know. In a stabilization machine like Spiratone's, the print is immersed fully into the stabilizer solution. So the answer was to use activator solution in both trays of the Spiratone processor, since the stabilizer solution isn't useful with RC papers anyway.

I rinsed out the processor, loaded it with two bottles of activator and presto, excellent machine-developed prints ready for fixing in 15 seconds, and with an added plus. If the print seems a little low in contrast, you can get about half a paper grade's worth of extra contrast simply by putting the print through the Spiratone processor a second time before fixing. There isn't any second solution in the machine to prevent that. Thanks to Kodak and Spiratone, I am beginning to catch up on my family printing and still have time to make fine prints on real paper. ■

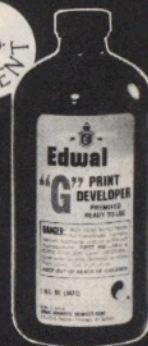
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STRATEGIES FOR SHEET FILM PROCESSING

Once you've committed yourself to the rigors and rewards of 4x5 or a larger format, you're faced with learning a whole new darkroom repertoire of facts, equipment, tips, and techniques to match your new film size.

Perhaps the most fearsome hurdle you'll face is that of developing those first big sheets of film. How can you match your movements to their cumbersome size? And what equipment do you use to process them? Suddenly the memory fades of how perfectly sharp, grainless, and detailed prints made from big negatives look. In its place lurks the suspicion that you're in over your head.

In fact, there's a host of tools and techniques available to you, and you can rest assured that they've been tested, modified, and updated, probably for a century or more!

THE CHEAP AND EASY WAY

The simplest and least expensive way of processing your large negatives is in a line of trays, much like the chemical line you use when processing your prints. If you are handling 4x5 sheet film, 5x7 troys will do, but on 8x10 troy will give you more room to operate. You'll need a setup with four trays, five if you plan to use a tray for washing. One will hold a water presoak, the other three will be for the traditional developer, stop, and fixer. If you're using black-and-white film (and I'm going to assume in this column that you are), you'll also want to put a safelight with a #3 (dark green) filter at least three feet above your troy setup, to give you enough light for orientation.

To process sheet film using this arrangement, start by immersing the film, one sheet at a time, into a troy filled with water at the same temperature as the developer. This presoak allows the gelatin emulsion to swell evenly so your development is uniform. When your stock of film (I find I can handle up to 12 sheets this way) is all in the troy, move the bottom sheet to the top of the stock by carefully sliding it out on the right side of the batch. Continue this shuffle until you have gone through the entire stock. Rotate the pile of film 90 degrees, and repeat this shuffle. Repeat one more time, then move the film into the

developer. Continue the rotating shuffle until the development time is up, and then continue through the remainder of the chemicals in the same manner.

BUT WATCH OUT!

For a person who does a limited amount of sheet film, troy development is an easy way to handle film processing. In addition, it virtually guarantees negatives without the agitation streaks and development irregularities so common to sheet film processing. I have done thousands of sheets of film this way and never damaged one of them but I've been lucky! There are drawbacks to tray film developing. Since you are handling film with your hands, you must be extremely careful to avoid fingerprints on the film; the oil on your fingers can act as a barrier, preventing the processing chemicals from getting into the emulsion and doing their job. So handle the film by the edges only.

Another problem lies with scratches. If you're not careful when shuffling the film, the sharp edges of one sheet can scratch the delicate emulsion of its neighbor, leaving you with a serious re-touching job. Finally, with this method there's a limit to the number of negatives you can run through at one time.

THE PROFESSIONAL SOLUTION

If you are interested in a more professional set-up, the answer probably lies with "deep tanks" designed specifically for processing sheet film. They come in stainless steel, plastic, and hard rubber, depending on your budget. Stainless is easier to clean and longer lasting, as well as more temperature responsive, but it costs much more than the alternatives.

As with troys, you'll need one tank for each chemical you use, unless you plan to pour the chemistry out of one tank while your film is "souping" in another; in that case you'll need just two tanks (and a little extra energy).

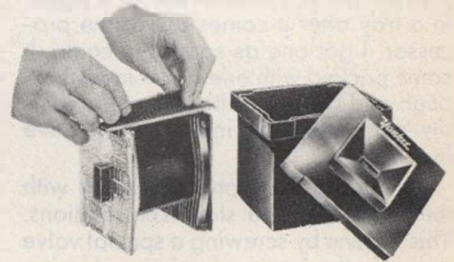
Several companies make stainless steel tanks with floating covers that keep air away from the solutions in the tanks. Others offer light-tight tops that allow you to turn on the lights, at least between agitations. Some tanks offer both of these features. Leedal's \$40 model 307, for example, will handle a

dozen standard sheet film hangers and uses one-half gallon of solution.

Another stainless steel photo equipment manufacturer is Calumet. They make a number of sheet film processing tanks from stainless steel. Their half-gallon straight-sided 4x5 tank, model 22, sells for \$25. They also make set-ups containing two tanks in a self-enclosed, temperature-control water jacket; all their equipment is available for standard agitation or for sophisticated "gas-burst" bubble agitation.

A less expensive alternative to stainless steel is ABS plastic, of the sort used in football helmets. Tanks of this material are made by Cesco-Lite, and distributed by PhotoQuip, P.O. Box 732, Fernandina Beach, FL 32034. Their 4x5 tank, model 5FT, sells for \$9. Yankee Photo Products makes a \$7.95 tank of similar design, but with a convenient twist. Called a Utility Tank, it has grooves molded into the edges of the tank to keep the film hangers separated.

The Yankee CF-45 is a light-tight system with an insert that eliminates the necessity of film hangers.



Old-timers will remember a sheet film tank made of Bakelite that had an insert designed with slightly curved grooves to accept the sheets of film. This insert was loaded with 12 sheets of film, placed into the rectangular tank, and the light-tight lid placed on top. The lid had a light-sealed spout for pouring solutions in and out of the tank. The Yankee model CF-45 is a modern version of this old standby. It is made of a new high-impact plastic, and the grooved insert can be adjusted for all sizes of film from 2 1/4 x 3 1/4 to 4x5. One end of the insert is now a transparent plastic material for reversal exposures. It costs about \$20.

Whichever tank you buy, you're going to find it takes a little while to adjust your developing style to the new format you've chosen, and you're sure to have a few headaches at first. At times like this, it's best to keep in mind that you've got exactly 150 years of large-format heritage; it's the 35mm photographers who are working with the newcomer! ■

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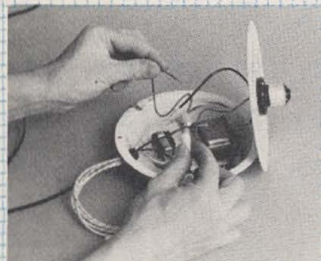
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It doesn't take special skills, tools, or materials to build a good useable light box for under \$30. In fact, anyone who can hammer a nail can do it. You simply build a plain, open-top box out of shelving and plywood, mount a circular fluorescent light source inside, and cover the top with white plexiglass. Here's a step-by-step guide to shed some light:

1. Start by getting the tools and materials on the supply list. Most building supply stores will cut your lumber to size, but be sure to tell the salesperson you need the cuts accurate and square. Fit the wooden pieces together right there at the store to make sure all the pieces fit.

2. On your work space at home, arrange the plywood bottom and the shelving sides to form an open-topped box. Then glue the pieces of shelving to the plywood and each other, as shown in the drawing. For added strength, nail the shelving sides to each other when the glue has thoroughly dried, then turn the

Disconnect the fluorescent's bottom plate containing the screw-in socket, and wire in your power cord.



box over and nail the plywood to the shelving. Drill the $\frac{1}{4}$ -inch hole for your power cord near the bottom of the box on one side. While you're at it, drill two rows of five holes each in one side of your box, to facilitate cooling, and your carpentry is done! Point the inside of the box flat white to maximize the light, and while you're at it, point the outside, too.

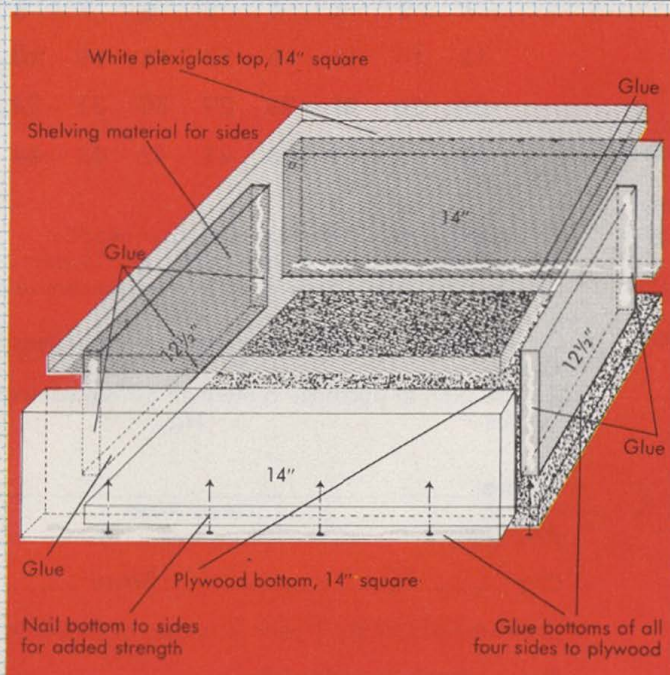
3. The fluorescent fixture I've recommended is inexpensive and reliable, but it does have a bulky "incon-

TOOLS & TRICKS

ROGER MULKEY

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An exploded drawing for assembling components of the light box.

descent type" socket on the back (so that it can be screwed into a standard light bulb socket). Remember that you're working with electrical equipment so keep the fixture **unplugged**. With the wooden box finished, the next step is to remove the socket so the fluorescent fixture will fit neatly in the box. Remove the fluorescent tube from the fixture and set it aside where you won't knock it around, and turn the fixture upside down. Take off the bottom plate containing the light bulb socket by unscrewing the three sheet metal screws. Disconnect the wires from the socket by unscrewing the plastic connectors and pulling the wires apart.

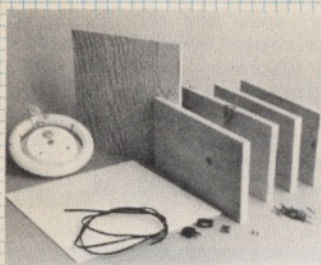
Use your new light box for negative and slide inspection, retouching, even sandwiching negatives or slides for new effects!



Now the bottom plate is entirely separated, and you can throw it away.

4. Run your lamp cord through the hole in the side of the fixture, separate and strip the wire ends, and connect them to the free wires in the fixture, using the plastic connectors that you just removed from these same wires. Tie a knot in the cord about 4 inches from the fixture connection, and then mount the entire fixture to the center of the plywood bottom of the box, using your three #6 panhead screws.

5. Feed the cord through the box, then install the cord switch and power plug, following the instructions that come with them. Replace the light tube, tape the plexiglass over the top of the box with your block photographic tape, and you're done! Plug it in, and switch it on! ■



You can get all the materials you'll need for your light box at a building supply store.

SUPPLY LIST

Wood shelving: 7-inch x 3/4-inch pine. Two pieces 14 inches long; two pieces 12 1/2 inches long.

Plywood: 3/8-inch plywood, one piece 14x14 inches square.

Fluorescent light fixture: Solight #7100 or equivalent. Eight-inch round screw-in fluorescent fixture with tube.

White plexiglass: One piece 14x14 inches square.

Light cord: 6 feet of standard (16 gauge) parallel lamp cord.

Switch: Any standard cord-switch such as a Leviton #800-413.

Plug: Any standard two-prong plug, such as Academy Automatic.

Screws: 3 #6x1/4 panhead tapping screws.

Nails: 36 1 1/4-inch wire nails.

Tape: One roll (50 feet) 1/2-inch black photographer's tape.

Paint: About a pint of any flat white paint.

Glue: Standard white glue, such as Elmer's.

Tools: Hammer, screwdriver, ruler or tape measure, wire cutter/stripper, X-acto knife, hand or electric drill with 1/4-inch bit, pliers.

Roger Mulkey is a professional photographer who currently works for an audio-visual company, producing slide shows and filmstrips.

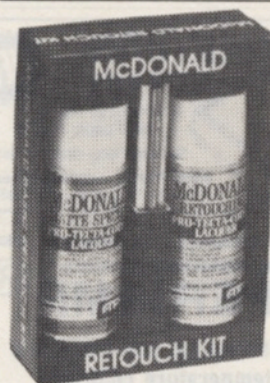
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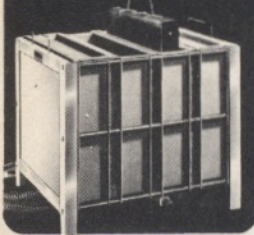
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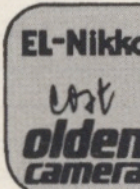
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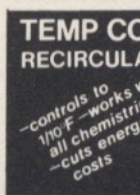


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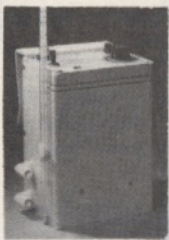
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CALENDAR

JULY

"Venezia '79—La Fotografia." 40 workshops taught by famous photographers, educators, and historians; 20 exhibitions on the theme "Trends and masters of the 20th century." June 16–September 16, Venice, Italy. Sponsored by UNESCO, municipality of Venice, and the International Center of Photography in New York. Contact: ICP, 1130 Fifth Ave., New York, NY 10028.

Nikon House Gallery. Exhibition *Pictures of the Year*, winning entries from annual competition sponsored by National Press Photographer's Association and the University of Missouri's School of Journalism. July 10–28. 620 Fifth Ave. at Rockefeller Center, New York, NY 10020.

88th International Exposition of Professional Photography and 27th National Industrial Photographic Conference. Sponsored by Professional Photographers of America. July 28–August 1. O'Hare Exposition Center, Rosemont, IL. Contact: Donna R. McMahon, PP of A, 1090 Executive Way, Oak Leaf Commons, Des Plaines, IL 60018.

Cronin Gallery. Exhibition *Selected Work by Edward Curtis*, June 26–July 20. 2008 Peden, Houston, TX 77019.

Fourth Street Photo Gallery. Exhibition *Fred Tuman*, July 1–31. 67 E. 4th St., New York, NY 10002.

Museum of Modern Art. Exhibition *19th Century Photographs from the Arnold Crane Collection*, to July 29. 11 W. 53rd St., New York, NY 10019.

Art Institute of Chicago. Exhibition *Recent Gifts from Jean and Julien Levy*, June 16–September 9. Michigan Ave. at Adams St., Chicago, IL 60603.

International Center of Photography. Exhibition *Polska Fotografia 1840–1979—Polish Photographs*, July 20–September 15. 1130 Fifth Ave., New York, NY 10028.

Friends of Photography. Exhibition *Annual Members' Exhibit*, July 13–August 12. Sunset Center, San Carlos at 9th, Carmel, CA 93921.

Photo Flow V. A Summer Festival. Exhibitions, presentations, and workshops, a 10-week summer program. Contact: Jill Lynne, Catskills Center for Photography, 59A Tinker St., Woodstock, NY 12498.

Canon USA Gallery. Exhibition *Kansas City Women*, Joseph Egnatic, July 2–31. 776 Market St., San Francisco, CA 94102.

Winona School of Professional Photography. Courses offered from July through September at Winona Lake. An activity of Professional Photographers of

America. For catalogue write: Winona School, Box 419, Winona Lake, IN 46590.

Dallas Museum of Fine Arts. Exhibition *The Selected Image*, master prints and their proof sheets by Harry Callahan, Laura Gilpin, Ray Metzger, Arnold Newman, Aaron Siskind, Jerry Uelsmann, Garry Winogrand, July 18–September 3. Fair Park, Dallas, TX 75230.

International Museum of Photography, George Eastman House. Exhibition *Edward Steichen*, July 4–October 28. 900 East Ave., Rochester, NY 14607.

Arkansas Art Center. Exhibition *Courthouse: A Photographic Document*, to July 15. MacArthur Park, Little Rock, AR 72201.

Atlanta Gallery of Photography. Exhibition *Andre Kertesz*, June 30–August 4. 3077 E. Shadowlawn Ave., N.E., Atlanta, GA 30305.

Photoworks. Exhibition *Walter Silver*, July 2–July 27. 755 Boylston St., Boston, MA 02116.

Chicago Center for Contemporary Photography. Exhibitions *Barbara Jo Revelle*, July 1–14; *Kenneth Shorr*, July 20–August 4. Columbia College, 600 S. Michigan, Chicago, IL 60605.

The Photography Place. Workshops, July and August in Philadelphia and Nantucket. Contact: Steve Williams, The Photography Place, 132 S. 17th St., Phila., PA 19102.

Colorado Mountain College. Courses from July through August by Darryl Curran, John Divola, Evon Streetman and others. Contact: Colorado Mountain College, P.O. Box 2008, Breckenridge, CO 80424.

Victor School Photography Workshops in Colorado. Summer program, July 7–September 20. Instructors include Jerry Uelsmann, Henry Shull, and Ralph Gibson. Contact: Al Weber, Victor School, Rt. 1, Box 145, Carmel, CA 93923.

AUGUST

Friends of Photography. Exhibition *Mary Estlin*, August 17–September 16. Carmel, CA.

Canon USA Gallery. Exhibition *Environmental Art*, Mark Rennie, August 1–31. San Francisco, CA.

Zone VI Workshop with Fred Picker. Black-and-white only, beginners to professionals. August 12–22, Putney, VT. Contact: Lil Farber, Zone VI Studios, Newfane, VT 05345.

Cronin Gallery. Exhibition *Recent Discoveries*, to August 31. Houston, TX.

Museum of Modern Art. Exhibition *Larry Fink*, August 6–October 30. 11 W. 53rd St., New York, NY 10019.

Fourth Street Photo Gallery. Exhibition

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CALENDAR CONTINUED

Lois Kaggen, August 1–31. New York, NY.

Atlanta Gallery of Photography. Exhibition *Contemporary Photography*, August 7–September 15. Atlanta, GA.

Photoworks. Exhibition *Christopher Brown*, August 6–31. Boston, MA.

Nikon House. Exhibitions *Nikon International Photo Contest*, to August 18. 620 Fifth Ave. at Rockefeller Center, New York, NY 10020.

Photographer's Gallery. Exhibition *Robert Fast*, August 9–September 2. 234 2nd Ave. S., Saskatoon, Saskatchewan, Canada.

SEPTEMBER

Jeh Gallery. Exhibition *Elliot Erwitt*, September 5–29. 347 S. Main St., Providence, RI 02917.

Preservation and Restoration of Photographic Images. Workshop. September 5–7, Rochester Institute of Technology. Tuition \$195. Contact: Andrew V. Johnson, RIT-GARC, One Lomb Memorial Drive, Rochester, NY 14623.

Photoworks. Exhibition *Mimi Fahy*, September 3–28. Boston, MA.

Concepts in Photography. Exhibition *Joe Aker*, September 2–October 1. 2929 Wilshire Blvd., Oklahoma City, OK 73116.

Galerie Optica. *Optica 100*, retrospective of the past hundred exhibits, September 1–30. 451 St. Francois-Xavier, Montreal, Quebec, Canada.

Museum of Modern Art. Exhibition *Ansel Adams: A Retrospective*, September 6–October 28. New York, NY.

Cronin Gallery. Exhibition *Chester Michalik*, September 4–29. Houston, TX.

Creative Color Workshop. Professionals and advanced amateurs. September 10–15, contact: Robin Perry, 820 Hartford Rd., Waterford CT 06385

Fourth Street Photo Gallery. Exhibition *Steven Benson, Cityscapes and Landscapes*. September 1–30. 67 East 4th St., New York NY 10003.

Atlanta Gallery of Photography. Exhibition *Victor Schrager, Grant Mudford, Douglas Gilbert, Robert Walker*, to September 29. 3077 East Shadowlawn Ave., NE Atlanta, GA 30305.

Silver Image Gallery. Exhibition *Ansel Adams Portfolios 5 & 6* to September 30. 83 S. Washington St., Seattle, WA 98104.

Witkin Gallery. Exhibitions *Nine Contemporary Photographers*. Anthony Barbaza, Jo Ann Callis, Lou Brown, DiGiullo, Debora Hunter, Paul Joyce, Barbara Kaston, Alex Kayser, Elaine O'Neil, Wayne Sorc. September 5–October 15. 41 East 57th St., Suite 802, New York NY 10022.

If your organization has news of an upcoming event, conference or exhibit, please let us know at least three months in advance of the event. Write: "Calendar," DARKROOM PHOTOGRAPHY, 609 Mission St., San Francisco, CA 94105.



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